



sahinler
METAL MAKİNE ENDÜSTRİ A.Ş.

USER`S MANUEL MODEL HKM – 115 IRONWORKER MACHINE



İzmir Yolu 22.km Mümin Gencoğlu Cad. 16285 BURSA / TURKEY

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CE DECLARATION

We as

ŞAHİNLER METAL MAKİNE END. A.Ş.
İzmir Yolu 22.km
Mümin Gençoğlu Caddesi
Bursa / TÜRKİYE

confirm that the machine

HKM 115

Serial Number :
Production Year :

complies with

EC MACHINES DIRECTIVE 98 / 37 / EC
replaced with EC-Directives 91 / 368 / EWG and
93 / 44 / EWG and
93 / 68 / CEE
EC-Low Voltage 73 / 23 / EWG
EC - Noise Level Directives 86 / 188 / EWG
EC-Directives EMV 89 / 336 / EWG

and the machine also harmonized with the standards

DIN EN 60204 Part 1

Name : Orhan ŞAHİN
Position : General Director

BURSA, on

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GENERAL NOTES

1. Introduction

Thank you for choosing a Şahinler Sheet / Metal Working Machine. We are proud to have you in our long list of satisfied customers all over the world.

This User's Manual is absolutely for your safety and is essential for the machine to have a long production life. As long as you keep up with our Manual you will be able to run your machine smoothly and safely. Keep in mind that the machine is designed absolutely to perform maximum safety and for efficient working.

In this Manual you can find instructions and information about:

- Correct installations of the machine
- Description of the functional parts of the machine
- Set-up and start-up adjustments
- Correct standard and scheduled maintenance
- Simple safety regulations and accident prevention.

Therefore, as far as the user's safety is concerned, in this handbook the possible risks connected with machine operation are pointed out as follows:



Attention: Showing the risks of accident, if instructions are not followed.



Warning: Showing the probable damages to the machine or equipment, if the instructions are not strictly followed.



Note: It gives useful information.

It is certainly necessary that the operator should read and understand all the **Attention, Warning, Note** specified in this Manual before starting with operation of the machine and before any lubrication or maintenance intervention

On all steps of installation, operation and maintenance safety must be your first concern for the protection of yourself, other users and the service of the machine. In case of any failure please first refer to this Manual, and then if a solution cannot be found contact first of all the distributor where you purchased our product. Do not forget to refer to the drawings and the numbers for any spare part needed or to define any problem. Make sure you have the serial number and production year of the machine.

Our technical staff will make their best to help you in the most convenient way.

2. Transport

As soon as you receive the machine, check for any visible transport damages. Should there be any visible damages; report it straight away to the transporter company and of course Şahinler Metal Mak. End. A.Ş. or your supplier.

Remove any protective crates around the machine and read the instructions on related chapters of this Manual carefully to set up the machine. If the machine is damaged while transport, **immediately take some photographs for insurance** claims.

Take precautions while loading / unloading or moving the machine to avoid any injuries. Refer also to related chapter of this Manual for the best way of handling the machine.

3. Electrical Information

All necessary connection procedure can be found on this Manual. Do not try to connect the machine before reading these procedures and fully understanding the drawings. For any unclear matters get in touch with Şahinler Metal Mak. End. A.Ş. or any of the Şahinler distributors. Have the machine connected by a qualified electric technician. For, as we made clear in the “general conditions of guarantee”, under no circumstances installing mistakes, including electrical connection mistake, can not be covered by guarantee agreement. Always turn off power before making any connections or disconnecting the machine.

4. Maintenance

Your machine is designed and produced to work efficiently and smoothly. To achieve this you should also take care while operating the machine. Regard Maintenance sections to have the longest life from your machine. Try and use original spare parts where necessary and most importantly do not overload the machine or do not make any unauthorized modifications.

5. Safety

Take all precautions possible to avoid any personal injury while using the machine. Keep in mind to protect the third party people around the machine. Refer to safety directives.

GENERAL WARRANTY TERMS

- Your machine is covered by manufacturer's guarantee for a period of **12 months** from the date of purchase against manufacture defects. The warranty period does not exceed 18 months from the date of delivery from the manufacturer's factory.
- Warranty covers only manufacture defective parts and / or components that are reported as "defective" by a Sahinler Technician or the Agent Technician and must be reported to Sahinler in writing by fax or email.
- The manufacturer is responsible for the supply of free of charge spares only and cannot be held responsible for loss of work.
- Shipping and customs fees for the spare part must be paid by the end-user.
- If a technician travel is necessary Sahinler will not charge for labor and workmanship costs but the customer must pay traveling and accommodation charges.
- A Warranty claim does not relieve the Customer from payment obligations.
- The Customer can not ask or demand any reimbursement of damage nor the Customer will have the right to extend or delay payment obligations nor the cancellation of order and the refunding of damages as the guarantee is given for the defective parts of the machine and not for the job.



Note: All warranty claims must be applied with the Model, Serial Number and the Manufacture Year of the machine.

SAFETY AND ACCIDENT PREVENTION INSTRUCTIONS

General Safety Instructions

Following instructions are meant for the operator of the machine and it is the End-User's responsibility to make sure the operator reads and understands the following and the User's Manual for safe operation.

- Read the User's manual before operating the machine.
- Always inform electric faults to electric technicians.
- Keep your working dress or long hair or necklace etc away from rotating parts.
- Make sure you know the position of Emergency Stop Buttons on the machine.
- Switch off the machine when **NOT** working.
- Work with necessary safety clothes if necessary (safety shoes, glasses , earplugs etc).
- Control the Safety features before working and ensure they are working properly.
- See and understand Safety Labels on the machine.
- Perform periodic maintenance.
- **DO NOT** overload the machine.
- If you see abnormal behavior of the machine, stop the machine and inform your supervisor immediately.
- Be careful of other people around the machine during operation.
- Never modify electric unit.
- Never remove any mechanic or electronic safety features from the machine.
- Be extremely careful during transport or re-placement of the machine and follow transport instructions in the manual to safety handle the machine.

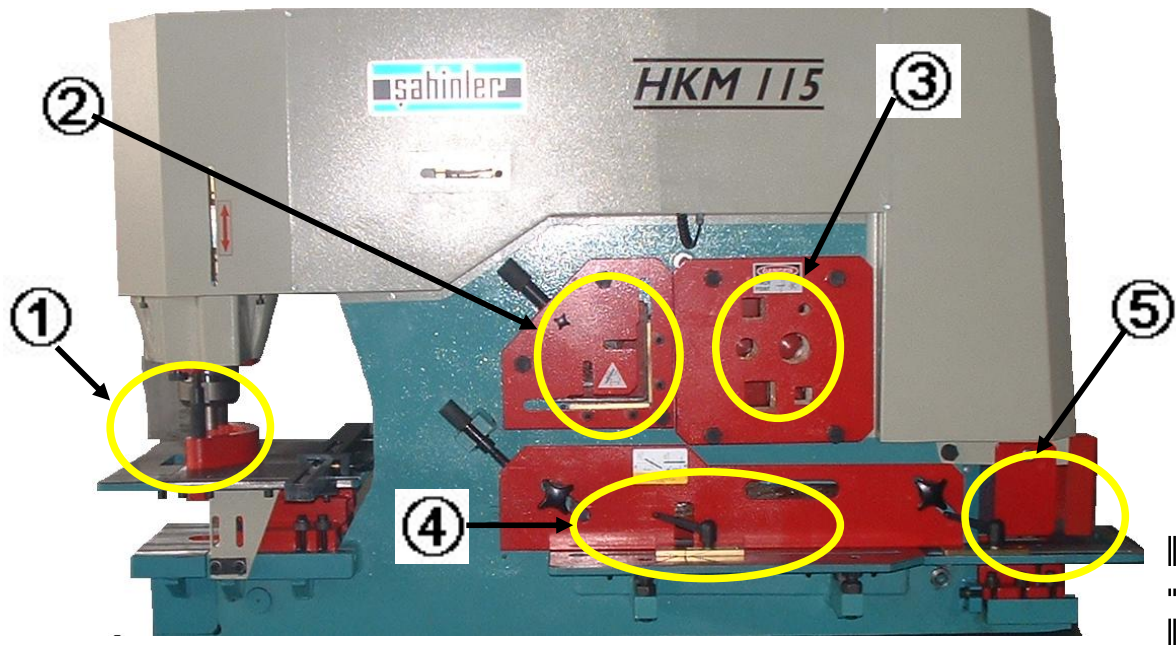
Machine Specific Safety Instruction

Safety Features

- Position of Emergency Stops.
- Position of Safety Labels.
- Position of the operator during operation.

Danger zones

We recommend you to use upper listed rules. If you use upper listed rules, we hope you will not take industrial accident. Shows danger zones below the picture and these zones workstation of the machine. You don't touch into the danger zones



SAFETY AND ACCIDENT PREVENTION INSTRUCTIONS

General Safety Instructions

Following instructions are meant for the operator of the machine and it is the End-User's responsibility to make sure the operator reads and understands the following and the User's Manual for safe operation.

- Read the User's manual before operating the machine.
- Never touch rotating or moving parts.
- Always inform electric faults to electric technicians.
- Keep your working dress or long hair or necklace etc away from rotating parts.
- Make sure you know the position of Emergency Stop Buttons on the machine.
- Switch off the machine when **NOT** working.
- Work with necessary safety clothes if necessary (safety shoes, glasses , earplugs etc).
- Control the Safety features before working and ensure they are working properly.
- See and understand Safety Labels on the machine.
- Perform periodic maintenance.
- **DO NOT** overload the machine.
- If you see abnormal behavior of the machine, stop the machine and inform your supervisor immediately.
- Be careful of other people around the machine during operation.
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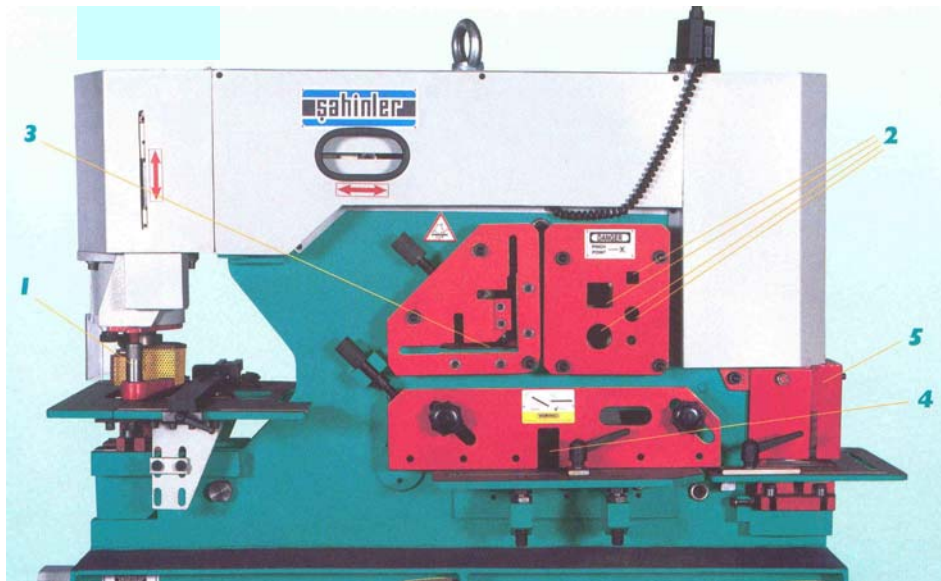
Machine Specific Safety Instruction

Safety Features

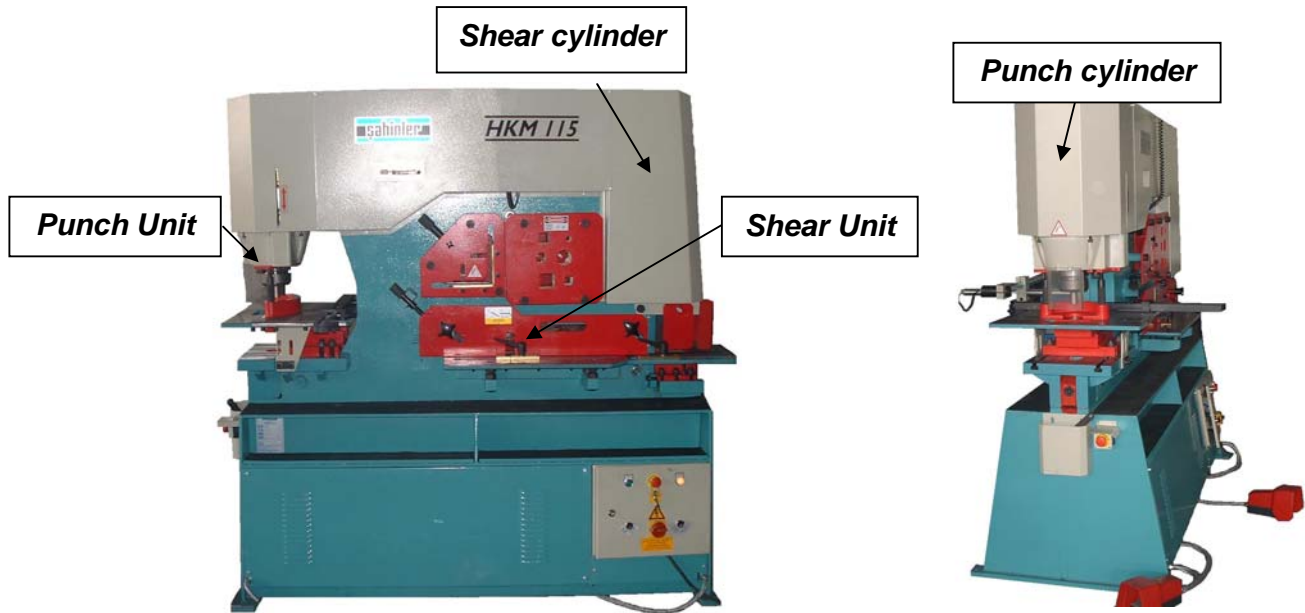
- Position of Emergency Stops.
- Position of Safety Labels.
- Position of the operator during operation.

Danger zones

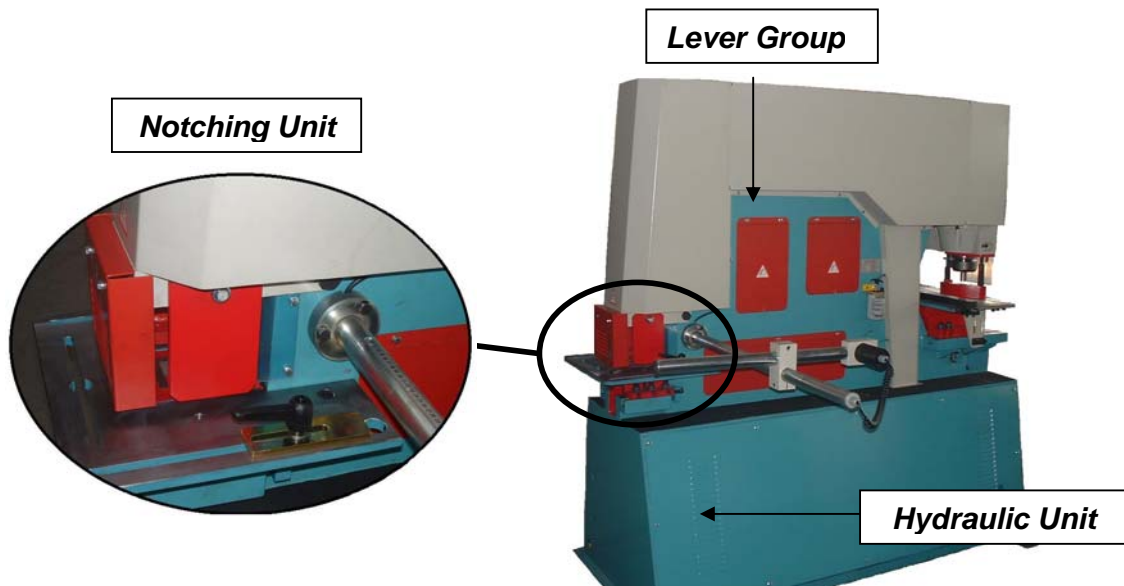
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VIEW OF THE DELIVERY SIDE



VIEW OF THE NOTCHING SIDE

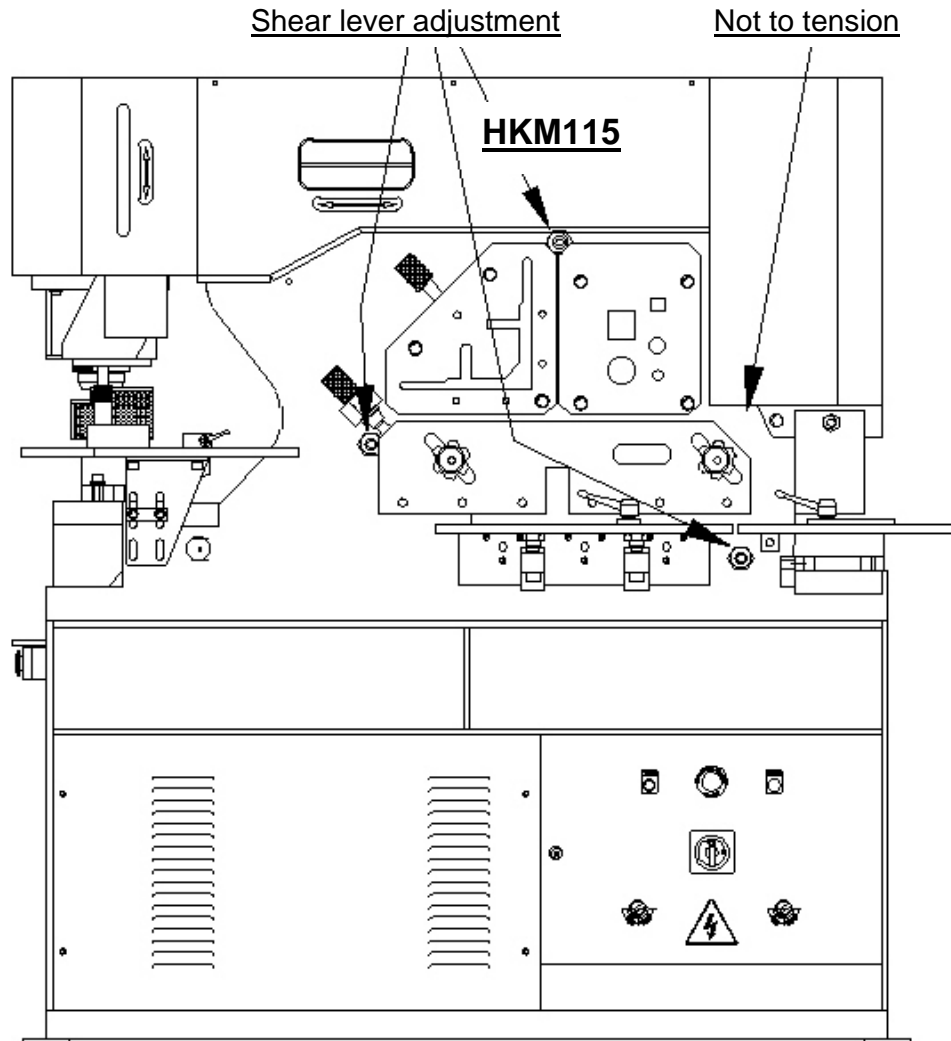
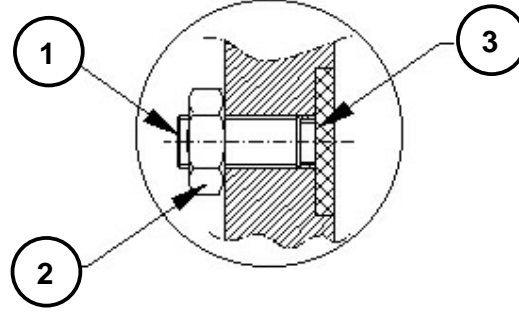


Adjustment of the shear blade

The adjustment of the shear levers should be carried out before any adjustment of the shear blade. The adjustment explain as shown below.

Explanation of figure

1. Adjustment screw
2. Safety nut
3. Bronze pressure plate

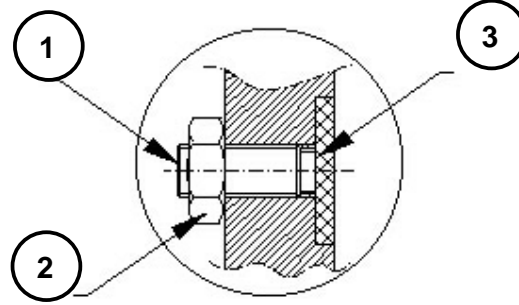


Adjustment of the shear blade

The adjustment of the shear levers should be carried out before any adjustment of the shear blade. The adjustment explain as shown below.

Explanation of figure

1. Adjustment screw
2. Safety nut
3. Bronze pressure plate



SETTING UP THE MACHINE

Ask for the help of an experienced and qualified technician while setting up the machine.

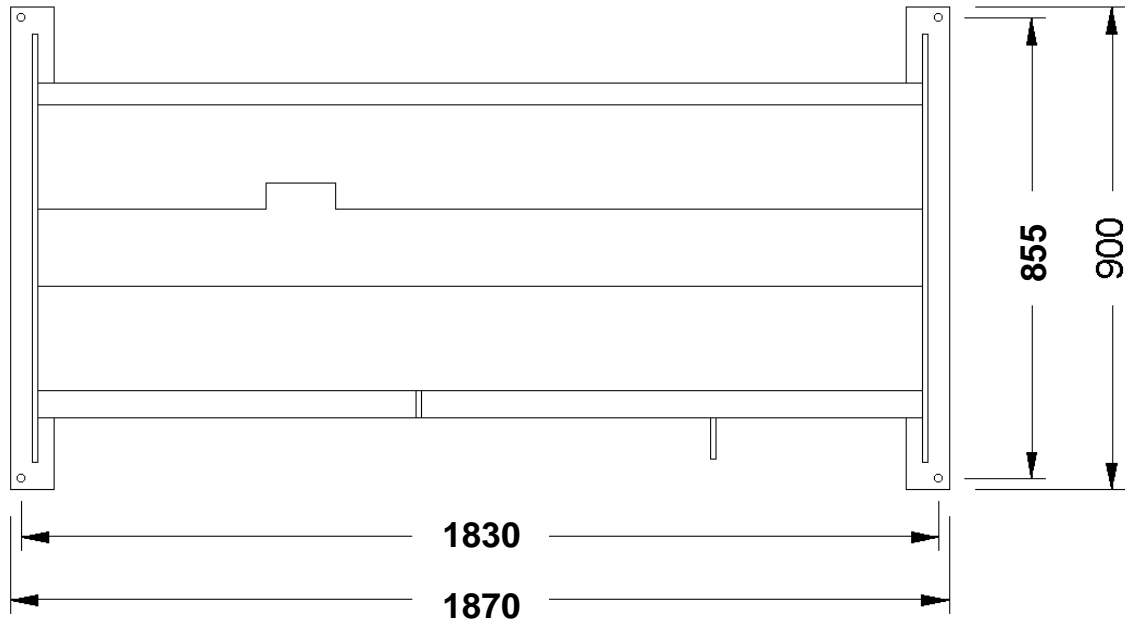
1-) Fundamental Plan of the Machine


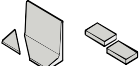
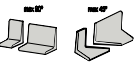
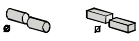
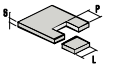




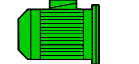
Four holes (Refer to the drawing below) Dia. 15mm

2-) Instructions

For an effective machine, the position and the base of the machine are important. Be careful on these points while placing the machine:

- The machine must be placed on a flat, preferably cement base. To fix the machine use bolts.
- There must be plenty of room all around the machine for easy working.
- The machine height is ideal for any workingman.
- There must be plenty of Light on top of the machine



 Ø x 8	DELİK ZIMBASİ		PUNCHING		HKM 45	HKM 60	HKM 65	HKM 85	HKM 115	HPM 65	HPM 85
	Max. Kalınlıkta çap		Diameter x max. thickness		Ø22x15mm	Ø28x15mm	Ø26x20mm	Ø33x20mm	Ø34x26mm	Ø26x20mm	Ø33x20mm
	Çap x kalınlık (Øx t)		Diameter x thickness		Ø38x8mm	Ø38x11mm	Ø57x10mm	Ø55x12mm	Ø55x16mm	Ø55x10mm	Ø55x12mm
	Min. Kalınlıkta çap (Özel) (*)		Diameter x min. Thickness Optional (*)		Ø100x3mm	Ø110x3mm	Ø110x3mm	Ø110x5mm	Ø110x5mm	Ø110x3mm	Ø110x5mm
	İş kursu		Stroke		50mm	55mm	55mm	80mm	80mm	55mm	80mm
	Kurs adeti (20mm)		Stroke count in (20mm)		x 20	x26	x 25	x25	x25	x25	x25
	Oluk derinliği		Throat depth		175mm	220mm	305mm	355mm	355mm	625mm	625mm
Çalışma yüksekliği		Working height		940mm	940mm	1030mm	1050mm	1050mm	1075mm	1050mm	
	MAKAS		SHEET METAL SHEAR								
	Düz sac		Sheet metal		200x15mm	200x20mm	300x20mm	380x20mm	380x25mm		
	Düz sac		Sheet metal		300x12mm	300x15mm	375x15mm	480x15mm	600x15mm		
	Bıçak uzunluğu		Blade lenght		316mm	317mm	380mm	482mm	610mm		
	Açılı Kesim		Shearing with angle		80x10mm	80x10mm	100x15mm	120x15mm	120x15mm		
	Çalışma yüksekliği		Working height		940mm	940mm	890mm	900mm	900mm		
	PROFİL KESME MAKASI		ANGLE SHEAR								
	Dik köşebent (90°)		Angle section (90°)		100x100x10mm	120x120x12mm	130x130x13mm	150x150x15mm	150x150x18mm		
	Açılı köşebent (45°)		Angle section (45°)		70x6mm	80x8mm	70x10mm	80x8mm	80x10mm		
	Çalışma yüksekliği		Working height		1140mm	1140mm	1130mm	1155mm	1160mm		
	DOLU MALZEME MAKASI		STEEL BAR SHEARING								
	Yuvarlak / Dörtköşe		Round / Square		Ø30mm-25mm	Ø40mm-35mm	Ø45mm-45mm	Ø50mm-50mm	Ø55mm-50mm		
 P x 8	ÇENTİK AÇMA		NOTCHING								
	Malzeme kalınlığı		Thickness		8mm	10mm	10mm	13mm	13mm		
	Genişlik		Width		35mm	42mm	45mm	52mm	60mm		
	Derinlik		Depth		75mm	100mm	90mm	100mm	100mm		
	V Derinliği		V Depth		60mm	60mm	60mm	70mm	80mm		
	Köşe flanşı		Angle flange		80x8mm	100x10mm	100x10mm	100x13mm	100x13mm	100x10mm	100x10mm
	Çalışma yüksekliği		Working height		940mm	940mm	890mm	890mm	900mm		
ÖZEL KALIPLAR					OPTIONAL TOOLS						
	U - I profil bıçakları		U-I Section blades		80x45mm	80x45mm	130x65mm	160x90mm	200x100mm		
	T profil bıçakları		T Section blades		40x6mm	80x10	90x12mm	100x12mm	120x12mm		
	Özel çentik takımı		Special V-notching tooling		100x100x8mm	100x100x10mm	100x100x10mm	100x100x13mm	100x100x13mm	100x100x10mm	100x100x13mm
	V kıvrırma	Lama kıvrırma max.	V bending Press brake	Bar bend. max. Capacity	100x12mm	150x12mm	250x15mm	250x20mm	250x22mm	250x15mm	250x20mm
		Sac kıvrırma max.		Sheet bend. max.capacity			500x3mm	500x3mm	700x3mm	500x3mm	500x3mm
	Çentik kısmında zimba	Çene derinliği	Punching on notcher	Bar bend. max. Capacity	85mm	110mm	125mm	125mm	125mm	125mm	125mm
		max. Kapasite		max capacity	18x12mm	20x12mm	38x8mm	38x10mm	38x12mm		
	TEKNİK ÖZELLİKLER		TECHNICAL DATA								
	Motor gücü		Motor power		4kW	4kW	5.5kW	7.5kW	7.5kW	5.5kW	7.5kW
	Ağırlık		Weight		1300kg	1250kg	1600kg	2430kg	3100kg	1900kg	2900kg
	Makine ölçüleri		Machine dimensions		1200x600x1400mm	1510x590x1570mm	1625x750x1800mm	1900x790x1910mm	1880x790x1990mm	1450x850x1614mm	1670x855x1763mm
	Basınç		Power (Pressure)		45 ton	60ton	65ton	85ton	115ton	65ton	85ton

ADDITIONAL TOOLS

PUNCHING AT THREADING STATION

Maximum capacity (Diameter x Max. thickness)	34x26	[mm]
Maximum capacity (Max. diameter x thickness)	110x5	[mm]
Throat depth	355	[mm]

PROFILE CUTTING

U – I Section blades	200x100	[mm]
T Sections blades	120x12	[mm]

NOTCHING

Thickness	13	[mm]
Width	60	[mm]
Depth	100	[mm]
V Depth	80	[mm]
Working height	900	[mm]

Special V-notching tooling	100x100x13	[mm]
Sheet bending max. capacity	700x3	[mm]

Based on material strength 45 [kg/mm²]

The maximum punching pressure of this machine is 1150 kN (115 ton)

The following tools are included in the basic equipment of the machine;

- 1 C – Spanner 120/130
- 4,5,6,8,10,14,19 mm. Allen keys
- Punch adapter
- Punch holder
- Stamp and matrix (26 mm)
- Scraper
- Round square blade (1 set)
- Angle cutting blade (1 set)
- Profile cutting blade (1 set)
- Notching tools

FIVE WORK STATIONS

1. 1-PUNCHING STATION

All punching operating are processed by means of hydraulic power thus giving the machine the ability to punch very efficiently and silently. It can either be used to punch thick materials or thin materials in layers together. Punching is silent, powerful, efficient. The waste materials in layers together. The punching table consists two parts. First is the punching flange. The second is holder. The holder is a device that holds the material after punching not to come back with the punch. It must be equally adjusted or it can break the punch. There are different holders for different materials. However the standard holder which we supply is suitable for punching is between 6-55 mm.

SAFETY PRECAUTIONS

- All power and depth and other adjustment must be done under full control of an experienced technician
- Please check all the moving parts before working
- Check the punch and die that they are in the same direction
- Adjust the holder equally and according to the material
- always use the protective plastics
- on small and accuracy needing works use special protection
- while replacing the punch or die or holder shut the main switch
- never leave the machine unattended
- do **NOT** overload the machine

2. SHEARING STATION

The shearing unit has been equipped with a simple and robust fixing installation, which can be adjusted for any material thickness within the cutting the cutting capacity of the machine. A shearing up to 45° for flat bars or the cutting of the flanges of angle profiles, which have previously been cut at inclined-angle cutting stations.

The shearing blades constructed for mass production can be used on both sides (the upper blade has 2 cutting edges, the lower blade has 4 cutting edges) and ensure a clean cutting with the minimum deformation, from the full capacity till a material thickness of only 2 mm.

SAFETY PRECAUTIONS

- Always use the bolder
- Never place any part of your body under the blade
- Do **NOT** overload the machine

3. CUTTING STATION

This station enables the cutting of big angles with a capacity of up to 90° and smaller angles up to 45°. The angle between 45° and 90° will be obtained, these will be cut first at 90° and then at the shearing station of the flange will be cut at the required angle. The fixing installation supports the material in a manner to provide a correct cutting.

SAFETY PRECAUTIONS

- Never place your hand or fingers inside the blade.
- Do **NOT** overload the machine
- Use holder fitted on this station for a better work



4. PROFILE CUTTING STATION

The machine are equipped as standard with the blades for cutting round and quadrangle bars. Through additional equipment, it is possible to cut at the machine U-section, I-section and T-section profiles in this clearance. The blades are held by simple squeezing jaws which ensure an easy equipment arrangement at the machine without any detailed adjustment.

SAFETY PRECAUTIONS

- Never place your hand or fingers inside the blade.
- Do **NOT** overload the machine
- Use holder fitted on this station for a better work

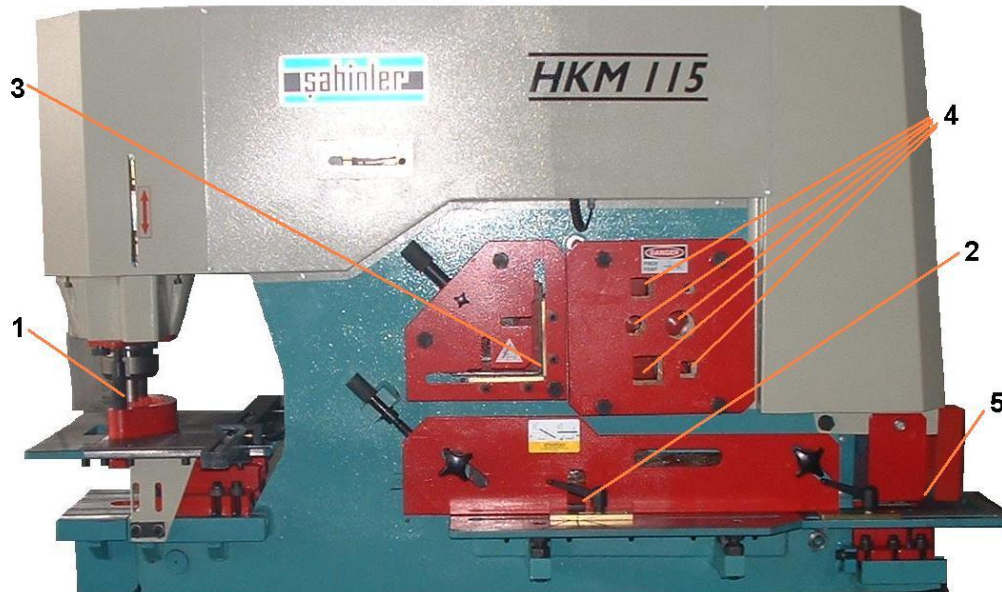
5. NOTCHING STATION

The notching station has been equipped as standard with a rectangle unit and threading table having adjustable counter holders, which enable a repeatable positioning. Additional installations are available for narrow widths or V notching of angles up to 45° (V). Furthermore, it is possible to have units for forming at bar ends and for easy notching works.

SAFETY PRECAUTIONS

- Never put any part of your body under the blade
- Use protective gloves or protective cages for very small works
- Do **NOT** overload the machine

SHOWS OF THE FIVE WORK STATIONS



STANDARD SPECIFICATIONS

- Punch and die Ø26
- Punch holder
- Flange cutting blade
- Notching blade
- Centralized lubrication
- Crescent key
- User's manual

TRANSPORTATION



APPROX
MACHINE
WEIGHT 3,1
TONS

DAMAGES

As soon as you receive the machine, make a general check on the machine and inform the transporter and the manufacturer in case of any visible damage. Especially be careful on these points;

- a) Visible mounted tools
- b) Tools in the
- c) Safety guards
- d) Oil gauge
- e) Main power knob
- f) Foot pedal cable

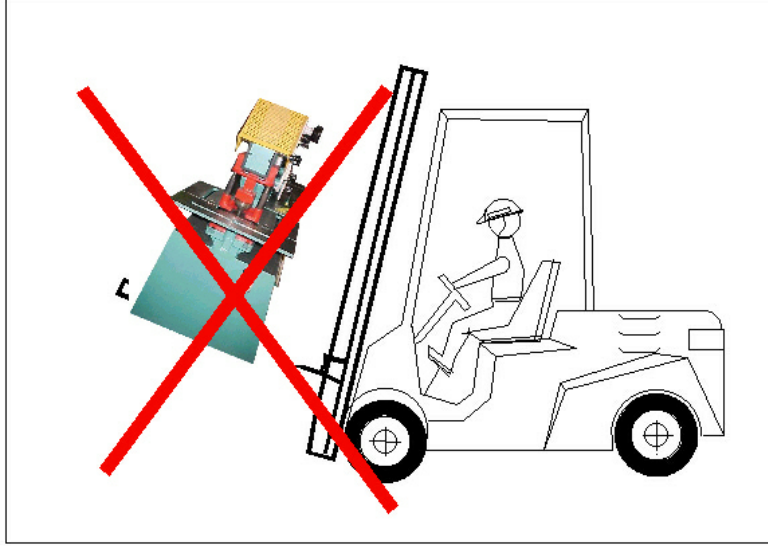


Attention:

If you see any visible damage on electric components, do **NOT** connect the machine to power. Inform the manufacturer as soon as possible. Ask a qualified electric engineer for connecting the machine. **SAHINLER WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY IMPROPER CONNECTION OF ELECTRICS.**

TRANSPORTATION

There is a ring mounted on top of the machine for transport purposes. You mount the chain or rope to this ring for all kind of displacement purposes.



DAMAGES

As soon as you receive the machine, make a general check on the machine and inform the transporter and the manufacturer in case of any visible damage. Especially be careful on these points;

- a) Visible mounted tools
- b) Tools in the
- c) Safety guards
- d) Oil gauge
- e) Main power knob
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Attention:

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SAFETY EXPLANATIONS

The **HKM-115** is equipped with a hydraulic check valve system in order to relieve the excess pressure when the machine is overloaded, thus preventing serious damage to the machine and the worker. All safety precautions are for your safety, which we believe will be obeyed by our customers unasked.

SAFETY UNITS

- Quick stop button use on the panel and main body
- Protective barriers

In this manual are summarized the important information for work safety. The following security explanations and instructions are considered as the essential information for your safety. Any and all persons who must operate the machine should be firstly trained well in terms of the operation and safety information and instructions. For this purpose, more copies of this manual shall always be asked from the supplier. It should be clearly fixed out that which persons will have the responsibility to change and arrange tools and blades. These persons need to be essentially trained in terms of this subject.

All the SAHİNLER machines are delivered as standard with a safety equipment, such equipment is for a high and general work safety. For this purpose, the machine should only be used in accordance for those purposes for which it has been constructed.

The most dangerous and probable deviations as to the construction limits of the machine are estimated to be as follows:

1. Machining of other materials as unalloyed steel (45 kg/mm²)
2. Erroneous use of the fixing installation
3. Punching or fixing very small work pieces, as these will easily cause the operators be subject to danger zones.

Should the additional tools be necessary to be used on the machine, which are not foreseen by the producer, it should be re-verified whether or not there is sufficient safety and security against work accidents. For this purpose, the producer should be contacted for advice when deemed necessary. All the maintenance works should be carried out by sufficiently qualified expert personnel. Particular attention should be paid to the correct assembly and arrangement of the hole stamps, cutting cases, blades and other tools. In order to enable us and yourselves to fulfill our mutual and common responsibility for all people, we request you to read this manual very carefully before putting the machine into operation and to obey all the safety information and instructions.



Attention: ALL THE PARTS OF THE MACHINE DYED IN RED ARE DANGER ZONES AND PARTICULAR ATTENTION SHOULD BE PAID IN SUCH ZONES !

All the operators should be instructed in order not to place their fingers or other body parts near, in or under the parts of the machine colored in red. There is the risk of losing the body parts when these are placed in such zones !

All the safety components and fixing installations that should be removed for maintenance purposes, should be remounted again before the machine is reoperated. The operators should wear the clothing described by the employer. The producer recommend the use of protection eyeglasses against eventual stamp breaks and shoes with steel covering in order to prevent foot of the operator against falling materials.

SAFETY RULES

- 1. The assembly and adjustment works, tool changes and maintenance services shall only be realized by the technical personnel qualified for this purpose, who should strictly obey the instructions of the producer.*
- 2. Remove any oil remaining, cuttings and other impurities from the working zone where such remaining might be left the previous operator.*
- 3. Before the starts working on the machine, the operator should make sure that all the tools are in a perfect condition.*
- 4. Any leakage and order of hole stamps and cutting cases, blade tolerances etc. should be checked after each tool change and be readjusted if necessary.*
- 5. The scraper should always be adjusted according to the material resistance to be machined. Unequal scraping forces can easily result with tool breaks.*
- 6. Never punch any material which stronger than the diameter of the hole stamp. In this case, the hole stamp can be overloaded and easily break.*
- 7. Always punch trough holes. Never punch base holes, unless the tool is clearly foreseen for this purpose. The lateral elongation force, which occurs during punching of the base holes, might excessively press the hole stamp against the cutting case and consequently an easy break might result.*
- 8. The machine has been designed in a manner to work with the pieces which can be placed without having subjected the fingers or hands into the danger zone. For punching, mortising and profile cutting of the short pieces (for instance small sheet metal parts), special tools, scrapers and security components are pieces should be placed into the machine and taken back suitable holding tools.*
- 9. Regularly check the screw connections and other fixings of all the blades and other parts as well as the safe seating of the hole stamp and cutting cases. For example, should the hole stamp (punch) get loose during the operation, there occurs the danger that the hole stamp inclined over the cutting case so that the tool might break.*
- 10. Before each tool change, make sure that the machine is disconnected from main switch.*
- 11. Completely disconnect the machine from the net before you carry out any maintenance work.*
- 12. Never let the machine function without any inspection.*



13. When you perform works where big forces are existing, the work piece should be additionally protected through a block having an assembled roll or similar installation, which is to be placed on the machine.
14. The machine capacity shall never be exceeded. For this purpose, check the "technical data" on this rules and compare the values with the information given on the manufacture plate. All the capacity information is based on a material having a resistance of 45 kg/mm²
15. Should the hydraulic circuit flow be overloaded, the hydraulic oil will be led back to the reserve tank over the overload valve until the pressure gets down again to the normal level.



Attention: HOWEVER, IT IS. NECESSARY TO UNDERLINE THAT IT MIGHT BE DANGEROUS TO USE THE OVERLOAD VALVE AS A " SAFETY VALVE " IN ORDER TO EXCEED THE MACHINE CAPACITY.

The producer presents all the instructions for a work protection and safety and hopes to have a good and full calibration with you, the users, in order to ensure that the maximum Level of safety could be obtained.

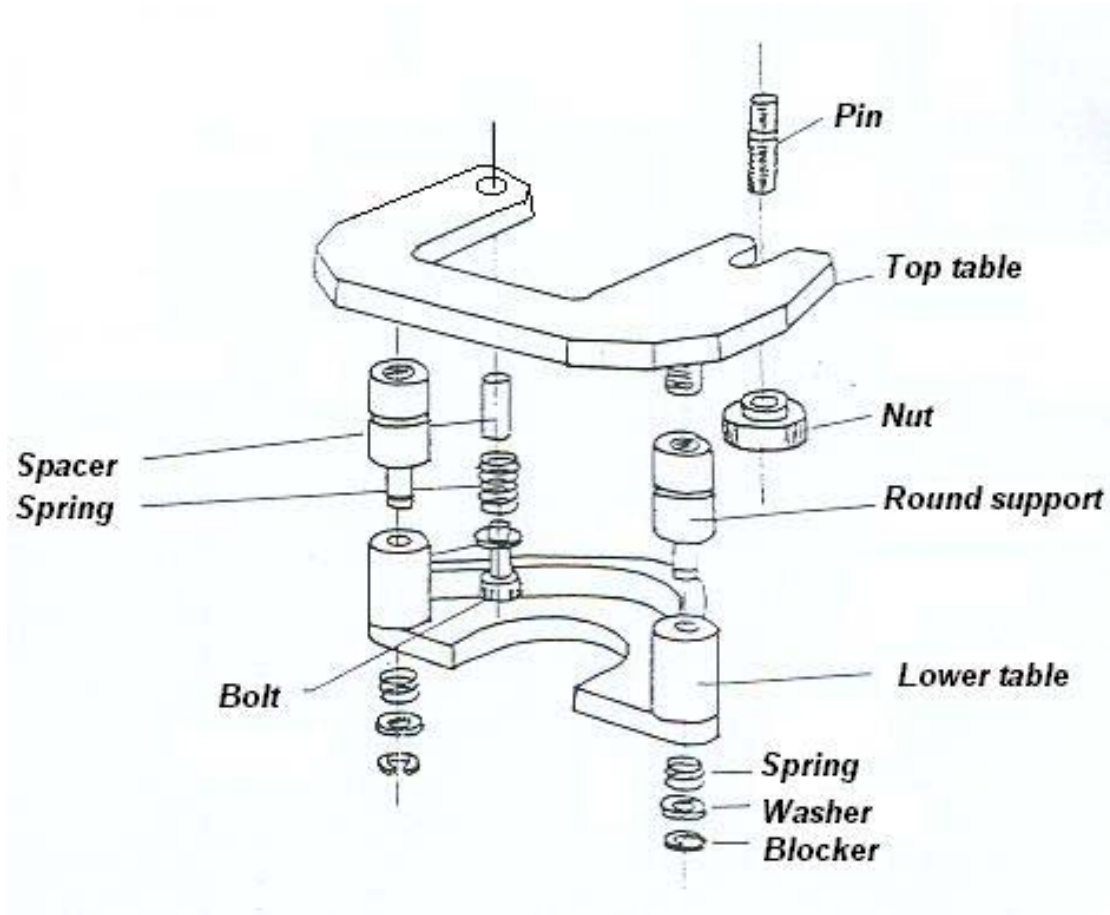
CONTROLS BEFORE PUTTING INTO OPERATION

1. Press on the green " **START** " button in order to start the machine. In order to ensure this, make sure that the red off button (" **STOP** ") rotates clockwise (or directly to draw).
2. Make sure that the entries for hole stamp and cutting case are safety fixed.
3. At the command table, change the status from " **NORMAL** " to " **ADJUSTMENT** " (Consider that the readjustment course is not automatic at this position. When you leave the foot pedal loose, the machine does not return to standby, rather it simply gets left).
4. Make sure that the course limiter allows a maximum course. Now, press on the foot pedal so often that the hole stamp stays in the cutting case. Take care that the hole stamp is regularly arranged with the cutting case.
5. Change the position from " **ADJUSTMENT** " to " **NORMAL** " at the command board. Now the machine gets automatically back to the standby position.
6. Check whether or not single cylinder perform, full course. Make sure that, no-hydraulic pressure occurs at the end of related course. In order to ensure that there is no air available in the hydraulic system, repeat the process several times (air might enter here during transport).
7. Verify all tubes, hoses connections, branching and reserve tank for eventual hydraulic leakage.
8. Fix again all the protection parts and remove all loose subjects from the working zone of the machine

The machine is now ready for your job.

||
"
||

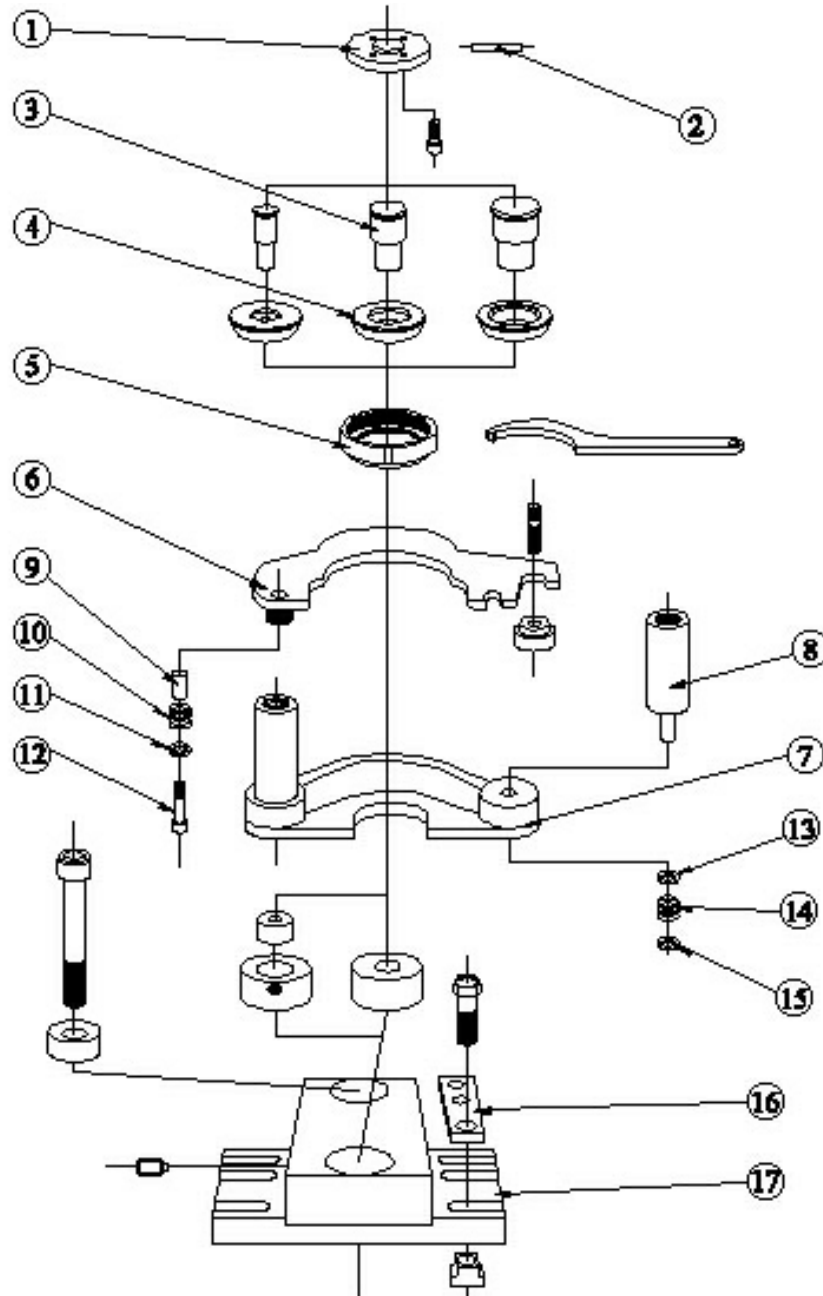
PUNCHING TABLE



In order to break the punching tool, you must use this table (holder) wisely. It must be always equaled and must be set for different pressures. The distance between lower table and material should be something between 1- 3 mm. Also to have the tool efficiently work the biggest part of the material should be covered by lower body during operation.



PUNCHING TOOLS



The part numbers in the above given figure 1 belong to the standard equipment.

The parts indicated in the below given table belong to the standard equipment. Some different hole stamps and cutting cases are illustrated on the lateral drawing.

As standard material, a Ø26 mm hole and cutting case delivered (the maximum diameter amounts to Ø38 mm). Adjust the hole stamp centrally so that an equally rotating cutting distance of 5 % of the material thickness remains. Never punch a material that is thicker than the diameter of the hole stamp.

Assembly No	Quantity	Part Identification	Brand
1	1	Pressure plate	Sahinler
2	1	Passing spring	OEM
3	1	Hole stamp	Sahinler
4	1	Adapter	Sahinler
5	1	Specific nut	Sahinler
6	1	Top scraper plate	Sahinler
7	1	Scraper head	OEM
8	2	Scraper support	Sahinler
9	1	Distance piece	OEM
10	1	Spring	OEM
11	1	Washer	OEM
12	1	Soc. head cap bolt M10x35	OEM
13	2	Washer 12 mm	OEM
14	2	Spring ring	OEM
15	2	Counter washer 12 mm	OEM
16	2	Support tensioning	OEM
17	1	Matrix holder	Sahinler

LUBRICATION OF THE PUNCH TOOLS

In order increase the service lives of the hole stamp and cutting case, we recommend you to use one of the below listed lubrications;

Shell Garia 927
 BP Servora 68
 Castroll llobroach 219
 Duckharns Adfomol EP7
 Joseph Batson LB 733

OPERATION OF THE MACHINE

Operation elements

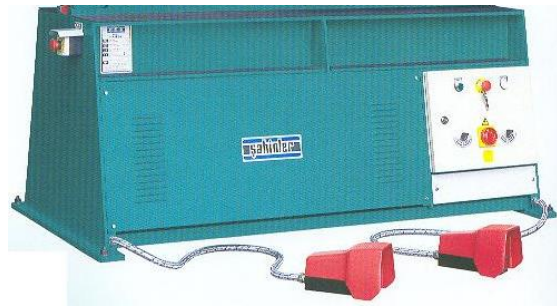
All the electrical delivery of the machine passes through the main switch. In order to connect this, rotate the switch clockwise. To confirm this, check that the control lamp starts lightening.

By pressing on the green **“START”** button, connect the motor (for the motor to be able to function, the **“STOP”** button should be disconnected. This can be realized by rotating the red button clockwise (or drawing this).

By pressing on the red **“STOP”** button, the motor will be stopped. The lightly pressed **“STOP”** button gets locked at command. In order to loosen the button and to cause the machine to function again, the **“STOP”** button will be turned clockwise (or drawn).



Note: The machine has two pedals and double pistons. We designed two workstations to work at the same time, two operators can make two operations at the same time.



The pedal switch has three positions:

- Over position
- central position
- lower position

If pedal is driven till the lower position and there remains fixed, the machine gets into the deepest punching position. Nevertheless, the machine doesn't turn back to the standby position until the pedal is left loose.

The central pedal position allows the operator to effect unlimited positioning including over and down course. This central position is very practical because it allows the operator to carry out touching so that the work piece can be optimally positioned.

The switch **“NORMAL / ADJUSTMENT”** ensures that the machine is operated at touch operation or performs production at normal functioning.

When the switch is arranged on **“NORMAL”** , the machine performs a normal and full work cycle at each action of the foot pedal, that means the punch moves to the lowest position and then gets again into the standby.

When the switch is arranged to **“ADJUSTMENT”** the machine stops. When the pedal is left loose, the automatic back course at this position has been cancelled.

REGULAR LUBRICATION INSTALLATION

The machine is equipped with a central lubrication pump under pressure which is located at used, the system should be adjusted to a pressure of 1-3 bars. When the machine is at operation, a suitable pressure would be maintained, through which the system will get back into the previous filling pressure (approximately each 30 to 60 minutes).



ARRANGEMENT OF THE PUNCH TOOLS IN GENERAL

The big punch bearing surface and the removable front block have been constructed in manner to allow a very wide range punch works:

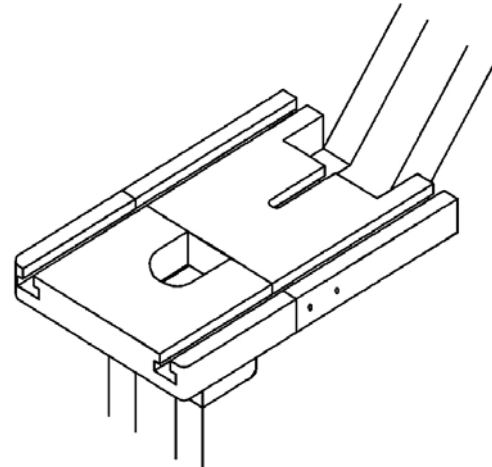
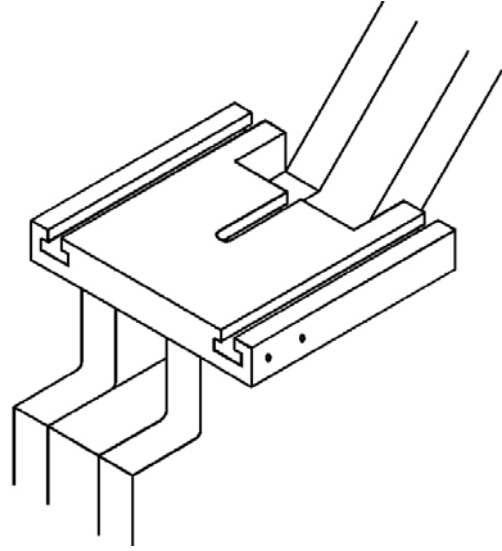
Through the optionally obtained tools, the big holes in any form up to the diameter / quadrate as it is indicated in the capacity table can be produced. In addition, machining at overhanging position, with the removed front in addition, during machining at overhang, with the removed front block, the of U profiles of double T supports having diameters or eventually diagonals up to 38mm highest capacity can be punched.

The punching stamp is held though a holding ring, according to the size of the stamp (punch) one or two of the delivered adapters can be used. The matrixes are fixed to the tensioning plate through a positioning screw. When the filled punch stamps and matrixes are be arranged, it should be paid attention to the screw is correctly placed on the machined surface of the matrix. In order to allow a suitable play area and to ensure that the material is taken out, the punch stamp scraper plate should be correctly adjusted, however it should not effect the stamp course. Attention should be paid to that the lower course limiting switch has been adjusted as per the instructions. When the holes are punched with sufficient material, a flat contact occurs at both sides of the scraper plate. The scraper forces can be important and unbalanced scraper forces can lead to the break of the punch stamp through the contact with a side of the scraper.

No material should be punched which is thicker than the stamp diameter. The quality of the hole is a direct finger appearance on the situation of the punch stamp and matrix.

When the scraper fingers are used for very big holes or irregular forms, the fingers should be equally position and adjusted in order to prevent and unbalanced scraper load.

Additional tools at this multi purpose work station allow bar and sheet metal bending works, edge threading, tube threading, tube threading and general column positioning works.



In order to install or change the punch tools you will need the following tools:

- Hook key
- Soc. head cap bolt key (6 mm)
- Screw key (24 mm)

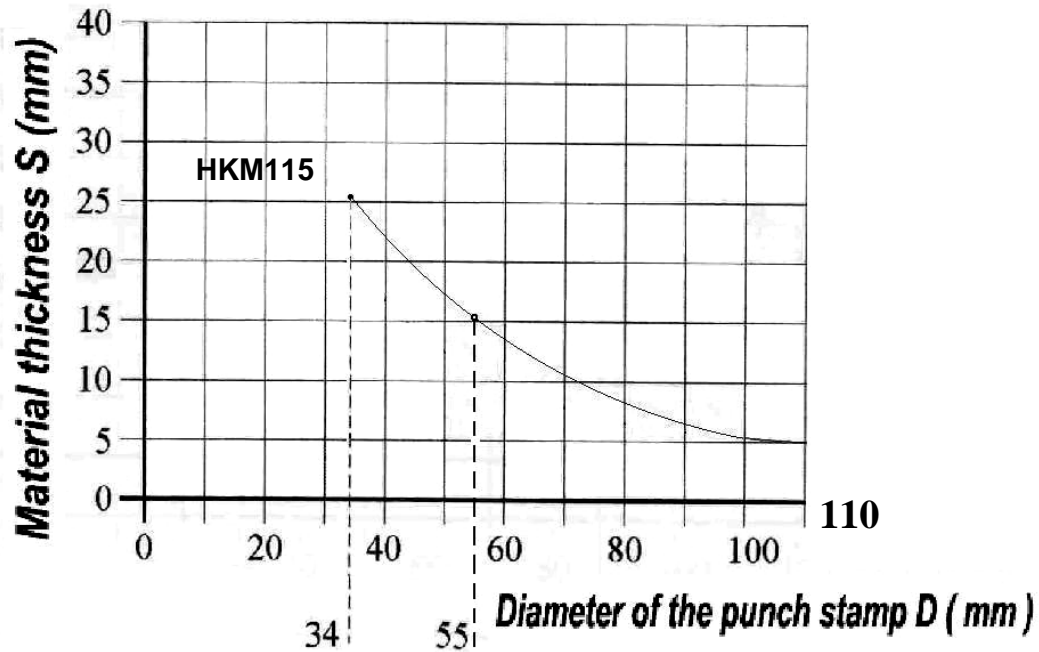
WHILE ORDERING SPARE STAMPS AND MATRIXES, PLEASE ALWAYS INFORM OF THE FOLLOWING : MODEL, TYPE AND MANUFACTURING NUMBER OF THE MACHINE.

Below we explain step by step now the hole stamp and cutting case are changed :

- 1) *In order to take out the cutting case, move the machine to a position where there is enough*
- 2) *Disconnect the machine at machine switch*
- 3) *Open the scraper, loose the coupling nut, fixing screws of the cutting case delivery plate and the M12 screws, which hold the cutting case. Remove the coupling nut together with the hole stamp and adapter. Remove the cutting case.*
- 4) *Place the required punch tool set. Make sure that the hole stamp and cutting case are correctly fixed.*
- 5) *Connect the machine and than position at "adjustment".*
- 6) *Move the hole stamp slowly towards the cutting case. Push the cutting case delivery plate correctly so that the hole stamp and cutting case are completely arranged.*
- 7) *Adjust the cutting case delivery plate in a manner that the cutting distance which remains between the hole stamp and cutting case is fully equal and draw the delivery plate fixed in this station.*
- 8) *Check whether or not the receiving plate has been deviated during the drawing. If the cutting is not equal, you should repeat the point 8. as soon as the plate is fixed the cutting distance is equal, adjust the machine to "normal".*
- 9) *Take the scraper back then adjust the distance between the scraper and cutting case according to the thickness of the material to the machined.*
- 10) *Adjust the course adjustment in such a manner that the shortest possible way should be left back.*
- 11) *In order to protect the operations, fix the **macralon** protection before you start working.*



PUNCH CAPACITY



The diagram shows the punch capacity curves of the XS-series depending on the material thickness and stamp diameter. (Based on a construction steel having a traction resistance of 45kg/mm^2).

Diameter of the punch stamp D (mm). During calculation of the punch capacity it should proceeded according to the following formula:

$$P = \text{SHEARING SURFACE} \times \text{TRANTION RESISTANCE}$$

$$P = \Pi \times D \times S \times \text{TRANTION RESISTANCE}$$

A calculation example :

A 20 mm hole will be necessary in a 12 mm thick homogenous steel sheet metal having 45kg/mm^2 traction resistance.

This is valid the following:

Punching pressure = Shearing surface x traction resistance x 0.0098 and
 Shearing surface = Volume of the punch stamp x material thickness (so the traction resistance
 Amounts to 45kg/mm^2 , 0.0098 is the fixed value for the calculation of kg/mm^2 on KN
 accordingly : $20 \times 3,142 \times 12 \times 45 \times 0,0098 = 333 \text{ KN}$ (33,3 Tons)

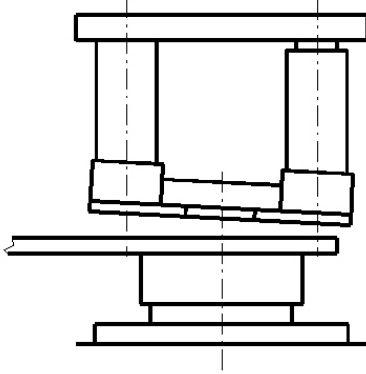


Attention :

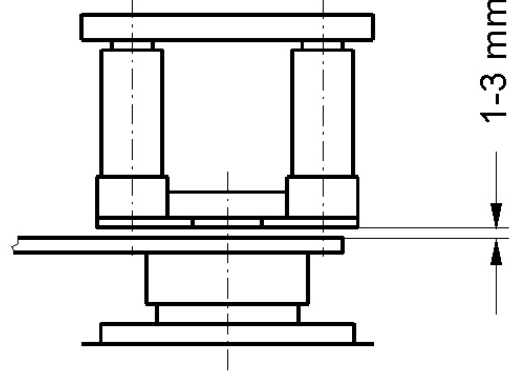
Never punch with a hole stamp which is thinner than the material to be machined.



SAFETY PRECAUTIONS ON EACH OF THE WORK STATIONS IS WRITTEN UNDER ITS NAME

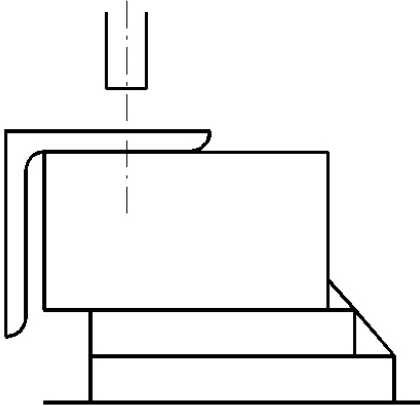


WRONG

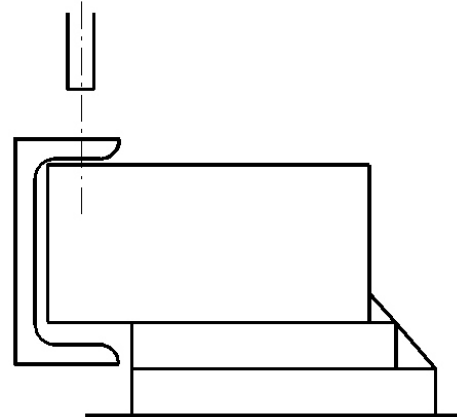


CORRECT

- *Wrong sized punch holder*
- *Wrong sized part*
- *Wrong distance*



Normal punching



*Very small punching, which requires
special eccentric die and tool*

FLANGE PUNCHING

You can use the standard tool for all kind of punching, however for flange punching like pictured above (right side), you have to order us a new set of eccentric die and tool.

ANGLE CUTTING INSTALLATION

- *This work station allows the cutting of big angles of 90° as well as cutting of the angles smaller than 45°.*
- *In order to cut angle profiles, the material is placed into the cutting zone through the fixing installation and the support screw is adjusted to the corresponding material thickness.*
- *Nevertheless, one should pay attention here in that longitudinal move of the profile still remains possible.*
- *For the inclined cutting at 45°, the angles should be first cut on the length where the delivery for the cutting of edges is also foreseen.*
- *Please the first and in the blade, here the highest support position will be used.*
- *Now cut about 6 mm from the end of the material, while you maintain 45° at vertical position.*
- *Now place the other and in the blade, here the left support position is used and then cut the material longitudinally. For this purpose, 45° should be maintained for from surface position of the machine.*
- *In order to obtain other cutting angles between 45° to 90° first cut the angle profile at length and then cut the flange as per the required angle at the shearing station.*
- *The cavity in the shear fixing installation allows that the angle profiles can be positioned for left or right side cutting. Here, attention should be paid to that the fixing installation gets adjusted to the related thickness.*
- *Each blade has four cutting edges and is held by the simple fixing screws. These blades should not be sharpened. After four rotation these should be replaced by new blades.*

WHILE ORDERING SPARE BLADES, ALWAYS STATE THE FOLLWING: MODEL, TYPE AND MANUFACTURING NUMBER OF THE MACHINE

SHEARJNG, L PROFILE SECTION CUTTING

The shearing unit has been equipped with a simple and strong fixing installation that can be arranged at any material thickness within the cutting capacity of the machine. A shearing delivery table having adjustable guides has been constructed in order to allow a correct delivery of the material. The guiding can be arranged in a manner to allow the angle cuts up 45° for fiat bar material or the cutting of flange of angle profiles, which have been previously cut at the inclined cutting station. Always place the material from the entry side of the machine and make sure that the material gets fixed by a correctly adjusted fixing installation. if a full cutting is required, the biggest possible dimensions for the material to be cut at angles, amount to 80x80x10.

In case the shear blade should be grounded, grind only the cutting surfaces. A re-grinding is possible up to a maximum depth of 0,8 mm. After the grinding the blades should be adjusted to a play of 0.1 mm.

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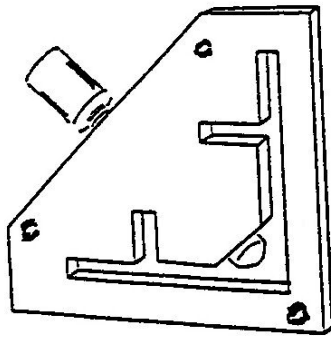


MITRING ANGLE 45 DEGREES

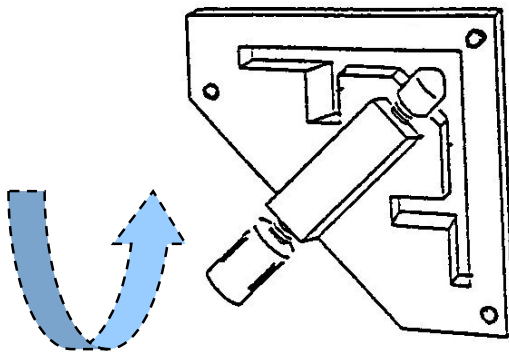
Since the introduction of the requirements for health and safety, the accessibility and distance between hold-downs and blades have been amended.

To this effect the operation cutting angle in the angle cutting station requires the following simple hold-down adjustment.

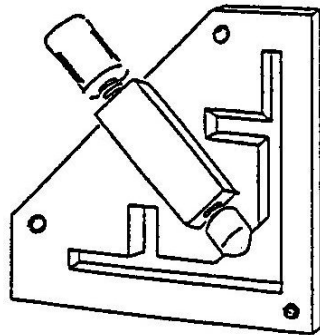
Once the hold-down is secured for cutting as position 3, it is also possible use the hold-down for cutting angle at 90 degrees if required.



STANDARD HOLD-DOWN
POSITION



REMOVE THREE SECURING
SCREWS & INVERT
HOLD-DOWN AS ABOVE



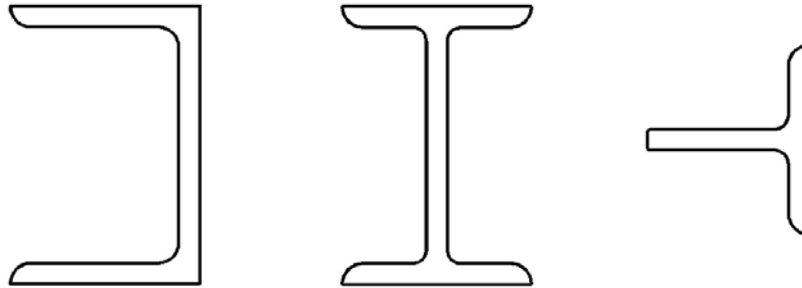
ROTATE AND SECURE THE
HOLD-DOWN TO THE
MACHINE FOR CUTTING

SHEARJNG, PROFILE SECTION CUTTING

The shearing unit has been equipped with a simple and strong fixing installation that can be arranged at any material thickness within the cutting capacity of the machine. A shearing delivery table having adjustable guides has been constructed in order to allow a correct delivery of the material. The guiding can be arranged in a manner to allow the angle cuts up 45° for fiat bar material or the cutting of flange of angle profiles, which have been previously cut at the inclined cutting station. Always place the material from the entry side of the machine and make sure that the material gets fixed by a correctly adjusted fixing installation. if a full cutting is required, the biggest possible dimensions for the material to be cut at angles, amount to 80x80x10.

In case the shear blade should be grounded, grind only the cutting surfaces. A re-grinding is possible up to a maximum depth of 0,8 mm. After the grinding the blades should be adjusted to a play of 0.1 mm.

Shows special section blades available



STEEL BAR AND PROFILE CUTTING INSTALLATION

In this clearance, various profiles can be cut—round and quadrant profiles, angle profiles with unequal levers, U profiles, double T supports etc. The blades for cutting the round and quadrate section have been constructed as a part of the standard equipment and have various size clearances. The smallest clearance that can contain the material should be chosen so that a complete and well supported cutting can be obtained.

In order to replace the blades, the material supports should be removed. For this purpose, the four screws that fix the blade hooks are loosen, the blade hooks are taken out and the screws are pulled out. Here it is possible to observe that the mobile blade is smaller than the fixed one. Consequently a false assembly at the use of the installed support blades is prevented. Attention should be paid in the same time to the safety tap. This should be aligned in the mobile blade with the safety clearance in order to prevent a false positioning.

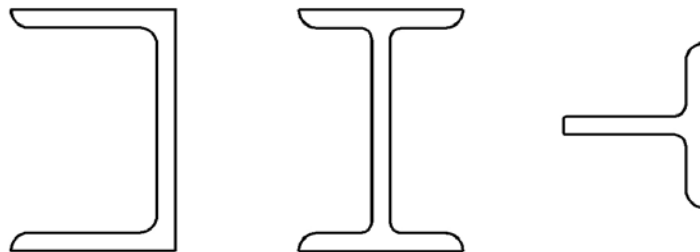
Adjustment of the blade tolerance :

- *Make sure that the mobile blade is well visible in the shear lever.*
- *Assemble the fixed blade in the frame in such a manner that this strongly presses against the mobile blade.*
- *Assemble the blade hooks solidly in the frame*
- *Pull out the six thread pins and then loosen at 1/5 rotation when you remove the counter nuts, hold the thread pin with the help of a internal hex. Key*

Steel bar shearing



Shows special section blades available



SHEARING INSTALLATION

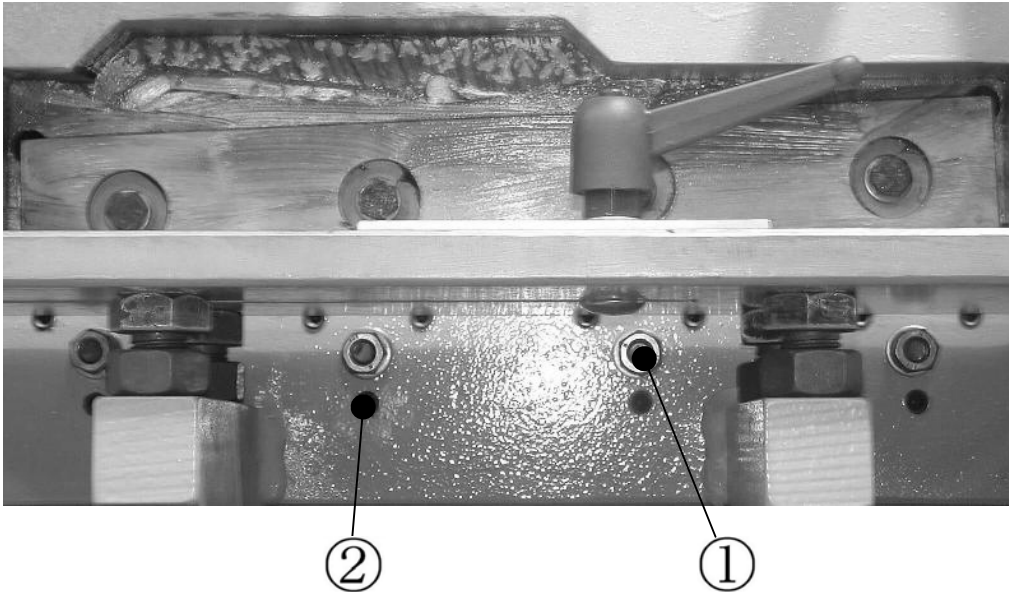
Blade adjustment / Blade Change:

During the installation of the new blades, pay attention to that the mobile blades fully approach onto the shear lever. While the machine is disconnected, pull blades together with the soc. head cap bolts (Nr.1) totally onto the shear lever.

In order to adjust the blades, move the shear lever so wide towards down that both blades get aligned. Now disconnect the machine. Adjust the mobile blade in such a manner that there remains a cutting distance of 0.1 mm. Pull the blade having conserved the right cutting distance (bolts, part no. 2).



Note : Both blades can be used on both sides. You have four cutting edges.





NOTCHING

The threading station has quadrangles punch stamp as a standard equipment element and is delivered with a threading table complete with adjustable lateral and rear counter holders, which essentially simplify the repeatable positioning of the material.

The sharp notching tools can also be constructed at this work station. Optionally, the units for narrower width of quadrangles or forms can also be delivered. Various units are also available for the forming of bar ends.

A special feature of this work station is the possibility to fix some punch end units, that means tools for smaller punching works up to a punch pressure of 65 t (characteristics can be supplied upon request).

In case the grinding of the notching stamp is necessary, only grind the side and front surfaces of the stamp. The matrixes have four cutting edges and should be turned in order to require new cutting.

NOTCHING TOOLS – ADJUSTMENT

The below described steps should be followed for the change of the notching (threading) blade set :

1. Move the stamp to the exit position (that means fully open)
2. Disconnect the machine at the main switch
3. Remove the scraper finger and the stamp
4. Remove the hole stamp and loosen the support
5. Fix the new stamp
6. Correct the machine and adjust it to “**ADJUSTMENT**” position. Fully lower the stamp and disconnect the machine
7. Take the hole ring into the support. Secure the front hole ring, then adjust the distance as illustrated in the below sketch
8. Secure the support on the machine after the adjustment of the front distance. Then adjust the side distances as illustrated in the sketch
9. Secure the side hole rings on the support. Check again the distances for safety
10. Connect to machine to loosen the stamp. Remount the scraper finger. adjust the machine course in order to have motion as small as possible.



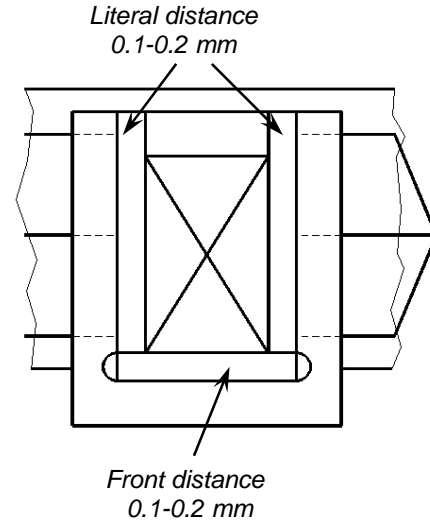
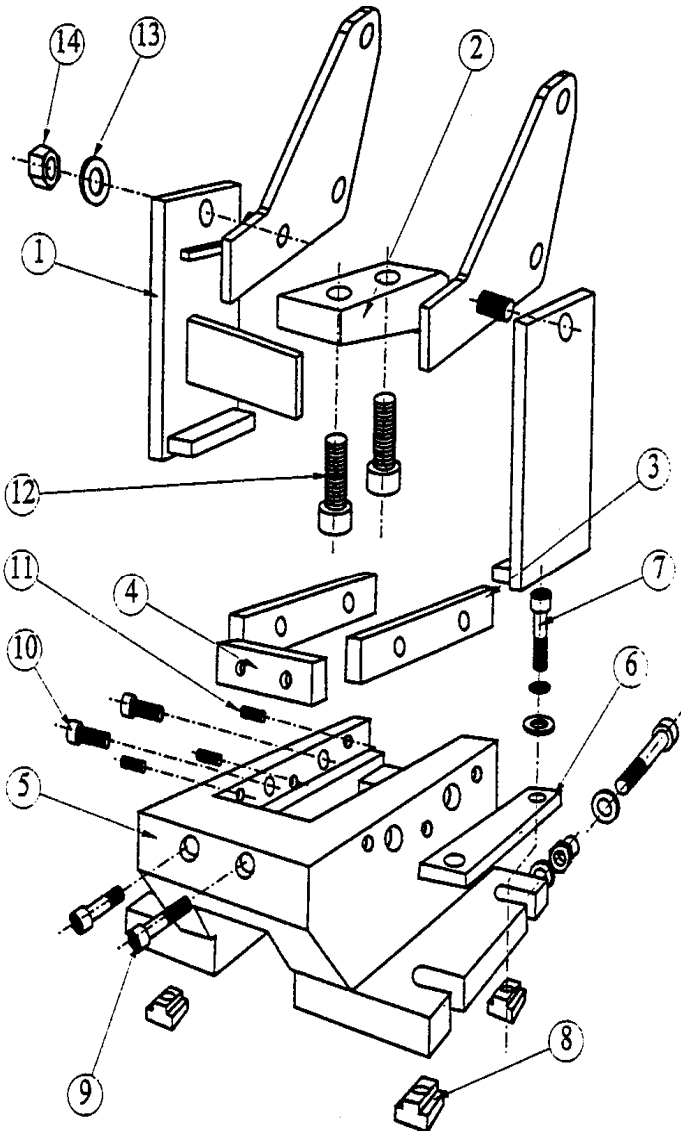
Note :

The lateral distances of the stamp should be adjusted as per the adjustments illustrated in the sketch. Then the limiter will be arranged in such a manner that the lower edges of the hole ring will be touched by the bas.



NOTCH ADJUSTMENT

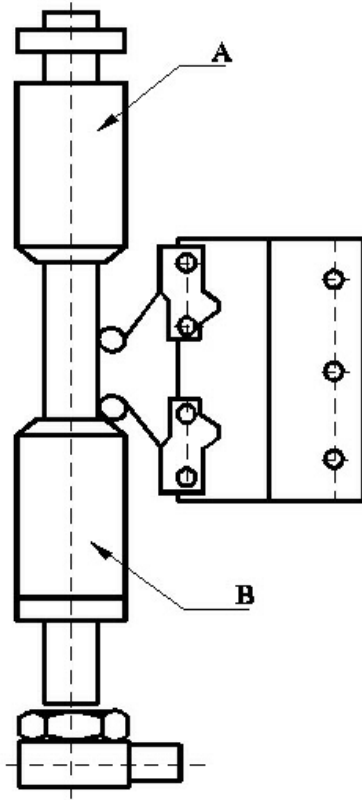
NOTCHING PARTS



NO	PART DESCRIPTION	PIECE
1	Scraper finger	2
2	Upper blade	1
3	Lower blade	2
4	Lower blade	1
5	Holder	1
6	Tensioning	2
7	Hex. Screw M12x65	4
	Spring disc 12mm	4
	Flat disc 12 mm	4
8	Nut M12	4
9	Internal hex. Screw M10x25	2
10	Internal hex. Screw M10x30	4
11	Maden screw M8x20	6
12	Internal hex. Screw M16x40	2
13	Flat disc M16	2
14	Nut M16	2



STROKE ADJUSTMENT



In order to lock the lowering stroke (that means repeated bending etc.) you must adjust the stopper A towards side.

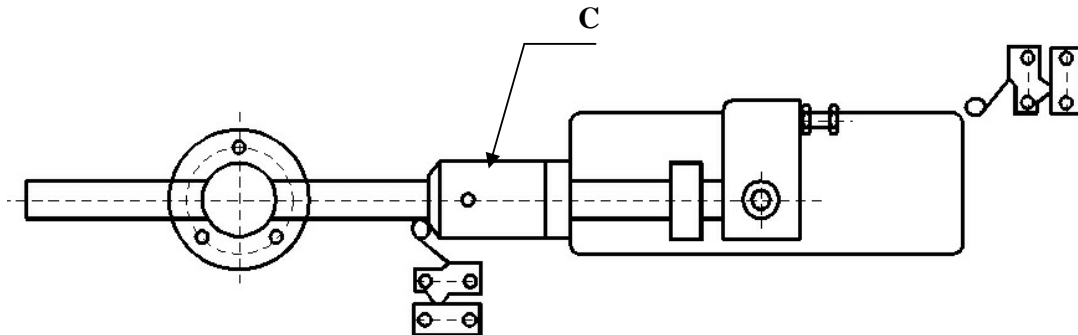
In order to lock the upper stroke B, use the punch stamp with the foot pedal and hold this in the lower position. Now lift the foot up in order to verify the position. If necessary, a readjustment shall be foreseen now.



Attention :

All the adjustments to be made on the stroke limiter, can also be carried out by using, the leading mode. For this purpose, the punch and / or shear position is arranged in such a manner that the required position is obtained by the foot pedal and then the stoppers are adjusted upon request. After the adjustment process, you must cause the machine to function under normal tempo in order check the stoppers.

In order to lock the back stroke of the shearing unit, use the shears with the foot pedal and hold them in closed position. Now you can adjust the stopper arrangement C. Then lightly lift the foot in order to check the position. If necessary, carry out a readjustment.



HYDRAULIC SYSTEM

A 7.5 kW motor drives a hydraulic pump, which supplies the power cylinders on each end of the machine through regulation valves. The punch cylinder is directly connected to the punching unit, where the shear cylinder is connected through a turning lever.

Hydraulic oil

For this purpose are advised the oil types indicated in the machine plate. The oil filling and ventilation supports are located in the tank where access is provided after removal of the protection having cooling cavities located on machine base.

Absorption filter

The oil filter should be checked every twelve months. Access to the filter can be ensured after having dismantled the screws of the tank protection. If necessary the filter can be washed in paraffin.

Impurity section

After having taken out the lower machine body protection, the section located under the main chassis should be checked each year for dirt and impurities.

Cleaning

Under normal operation conditions, all the visible working parts should be regularly cleaned from foreign substances that can prevent a standard use of the machine.

REGULAR MAINTENANCE

Daily Maintenance;

Before starting machine

- Check full level in tank – top up us necessary
- Check oil level in oil pump – top up us necessary
- Check condition of all blades, punch and die
- Check surrounding work area is tidy, remove and off-cuts, slugs from floor area
- Clean off any mill scale which may have collected around the cutting apertures

Weekly maintenance;

- But depending on work load
- Examine power cable and food pedal cable for damage or chafing
- Check movement of machine is smooth when running under no load condition

Monthly maintenance;

- Check arm adjustment for any slackness

Yearly;

- Change hydraulic fluid, check the oil absorption filter for any dirt and impurities

LUBRICATION

HYDRAULIC FLUID

Fill to top level of inspection glass. Use only mineral oil as recommended or equivalent. You can select a oil at the table 1

OILING LUBRICANT

Check oil level in pump reservoir daily, operate pump 2/3 times daily.

Castrol	Magna DR220
Shell	Tomma T220
B.P.	Energol GHI 220
Mobil	Vactra oil No. 4
Esso	Febis K220

Lubrication check

Before operating machine, the following important checks should be made.

- The hydraulic fluid is at top level of inspection glass.
- The oil pump has been operated, and that there is oil pressure indicated, check oil level in pump

HYDRAULIC OIL LIST

On most of our machines hydraulic systems we use Grade 32 Hydraulic Oil and Grade 46 Hydraulic Oil Generally we recommend the use of Shell Tellus Nr.46 and BP Energol Nr.46 for hydraulic systems

Brand	DIN 51524 Specification 32 Grade Mineral Oil	DIN 51524 Specification 46 Grade Mineral Oil
Agip	OSO 32	OSO 46
BP	Energol HLP 32	Energol HLP 46
Castro	Hyspin AWS 32	Hyspin AWS 46
Elf	Elfolna 32	Elfolna 46
Esso	Nuto H 32	Nuto h 46
Fina	Hydran 32	Hydran 46
IP	Hydrus 32	Hydrus 46
Mobil	DTE 24	DTE 25
Q8	Haydn 32	Haydn 46
Shell	Tellus 32	Tellus 46
Texaco	Rando HD 32	Rando HD 46
Total	Azolla ZS 32	AzollaZS 46

Table 1

MACHINE ROD AND LEVER READJUSTMENT

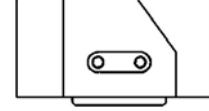
After a preliminary working period (about 5 to 6 days), it will be necessary to carry out arrangement adjustments on the machine.

Punch rod

- The arrangement of the rod will be realized with the help of a "rod leading plate".
- This plate should be readjusted.
- The related adjustment screws are located at the exit side of the machine.

In order to adjust the rod, proceed in the following manner :

- Remove the punch stamp
- Loosen the safety nuts
- Readjust the rod adjustment screw
(not to tighten too much)
- Lock the screws with a safety nut



The adjustment control is to be made through a few in and out movement (about 6 times) of the rod. Then the machine should be checked in adjustment mode. If the rod does not move here, the plate should be readjusted and the process must be repeated.

Shear lever

The machine should be disconnected before carrying out any readjustment works on the shear lever.

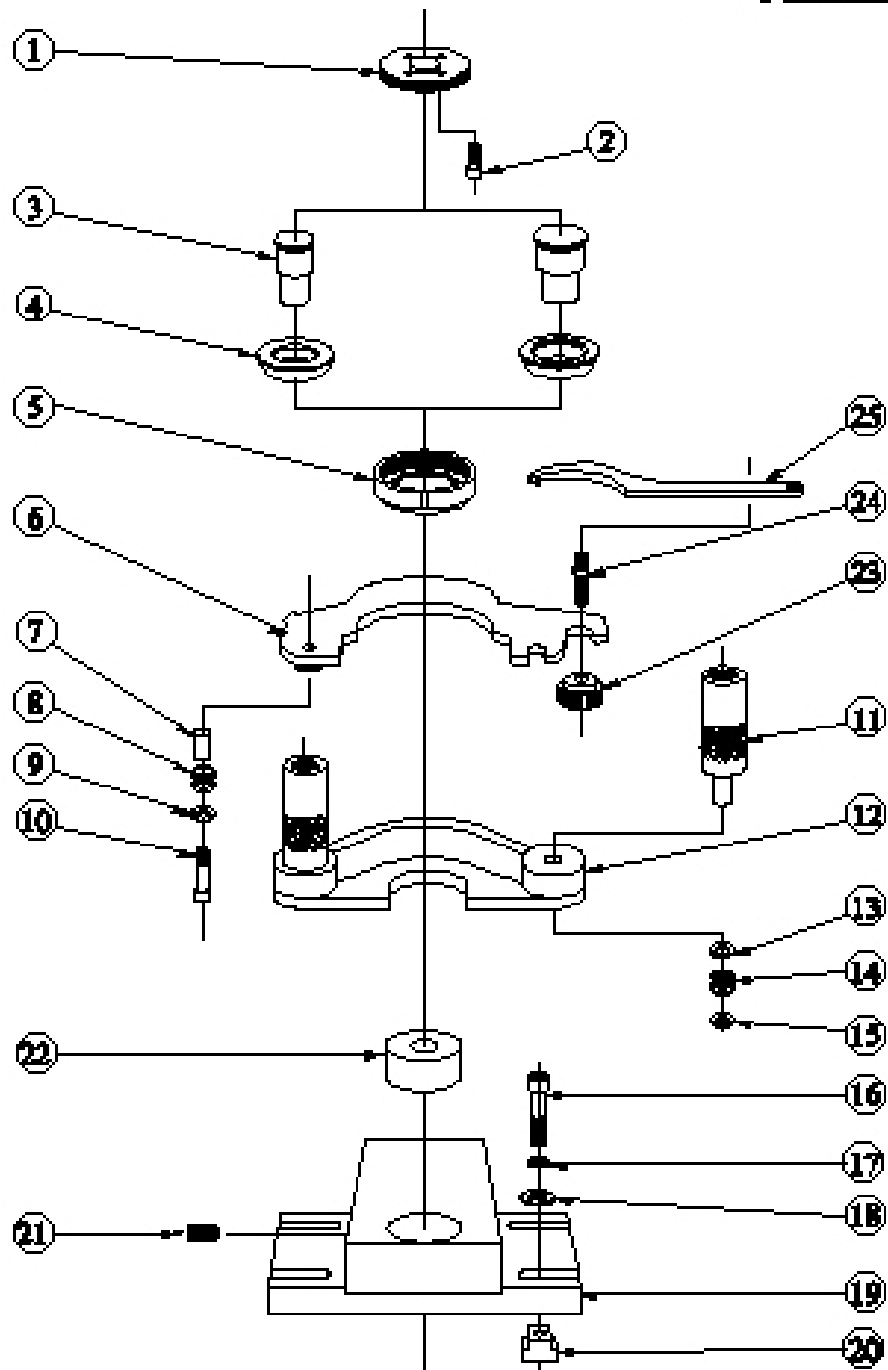
The readjustment of the pressure lines should be carried out from the delivery side of the machine.

For this purpose, proceed in the following manner :

- Loosen the safety nuts only of the three pressure line positions
- Until alight pressure is obtained, rotate the adjustment screws clockwise
- Tighten the safety nuts again and check the movement ability



Attention : The grooving stamp and matrixes are now not any more arranged. Please adjust these again before the use of the machine.



Page No		PUNCH SPARE PARTS	Date	Plan No	File Name	ŞAHİNLER
01			16-06-2003	00-01	ITICM105-Punch	016.01.01 0001

The part numbers in the above given figure 1 belong to the standard equipment.

The parts indicated in the below given table belong to the standard equipment. Some different hole stamps and cutting cases are illustrated on the lateral drawing.

As standard material, Ø26 mm hole and cutting case delivered (the maximum diameter amounts to 38 mm). Adjust the hole stamp centrally so that an equally rotating cutting distance of 5 % of the material thickness remains. Never punch a material that is thicker than the diameter of the hole stamp.

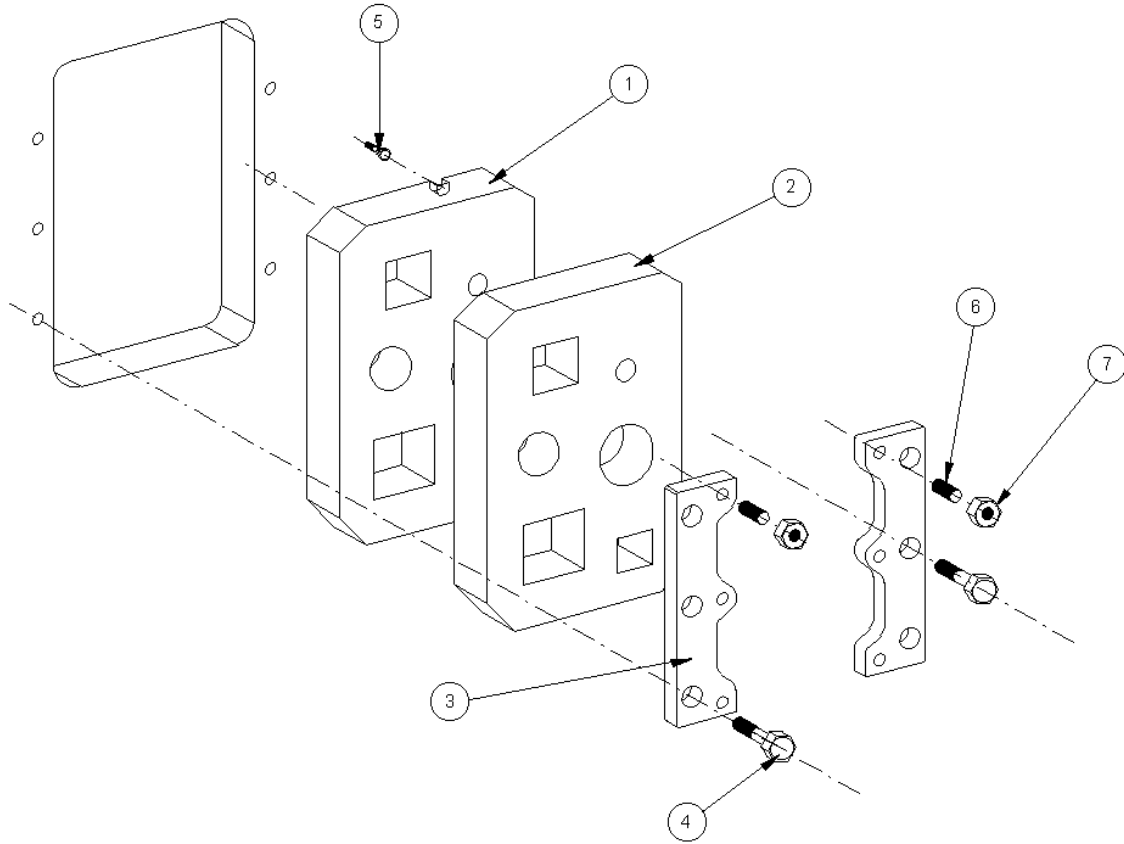
Assembly No	Quantity	Part Identification	Brand
1	1	Punch support	Sahinler
2	4	Soc. Head cap bolt	OEM
3	1	Stamp	Sahinler
4	1	Adapter	Sahinler
5	1	Specific nut	Sahinler
6	1	Top scraper plate	Sahinler
7	1	Distance piece	OEM
8	1	Spring	OEM
9	1	Washer	OEM
10	1	Soc. head cap bolt M10x35	OEM
11	2	Scraper support	Sahinler
12	1	Scraper head	Sahinler
13	2	Washer 12 mm	OEM
14	2	Spring ring	OEM
15	2	Counter washer 12 mm	OEM
16	6	Soc. head cap bolt	OEM
17	6	Counter washer	OEM
18	1	Washer	OEM
19	1	Matrix holder	Sahinler
20	6	T nut	Sahinler
21	1	Set screw	OEM
22	1	Matrix	Sahinler
23	1	Fixing wheel	Sahinler
24	1	Set screw	OEM
25	1	Hook key	OEM

LUBRICATION OF THE PUNCH TOOLS

In order increase the service lives of the hole stamp and cutting case, we recommend you to use one of the below listed lubrications;

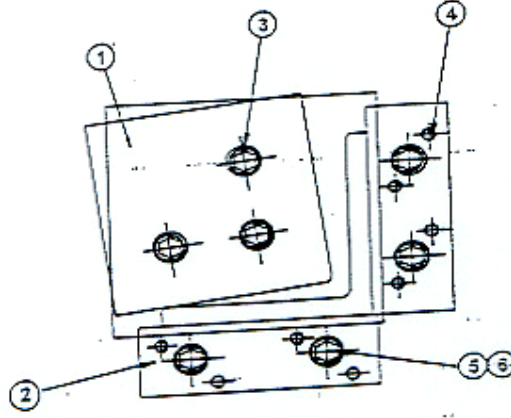
Shell Garia 927
 BP Servora 68
 Castroll Ilobroach 219
 Duckharns Adfomol EP7
 Joseph Batson LB 733

Steel bar cutting part list:



NO	PART DESCRIPTION	QUANTITY
1	Mobile profile blade	1
2	Fixed profile blade	1
3	Hook	2
4	Soc. head cap bold M20x50	6
5	Set screw M6x12	1
6	Set screw M12x40	6
7	Counter nut M12	6
8	Federing 20 mm	6

Blade adjustment / Blade Change:



During the installation of the new blades, pay attention to that the mobile blades fully approach onto the shear lever. While the machine is disconnected, pull blades together with the internal hexagonal screws (3) totally onto the machine body, without the thread pins (4) press against the blade.

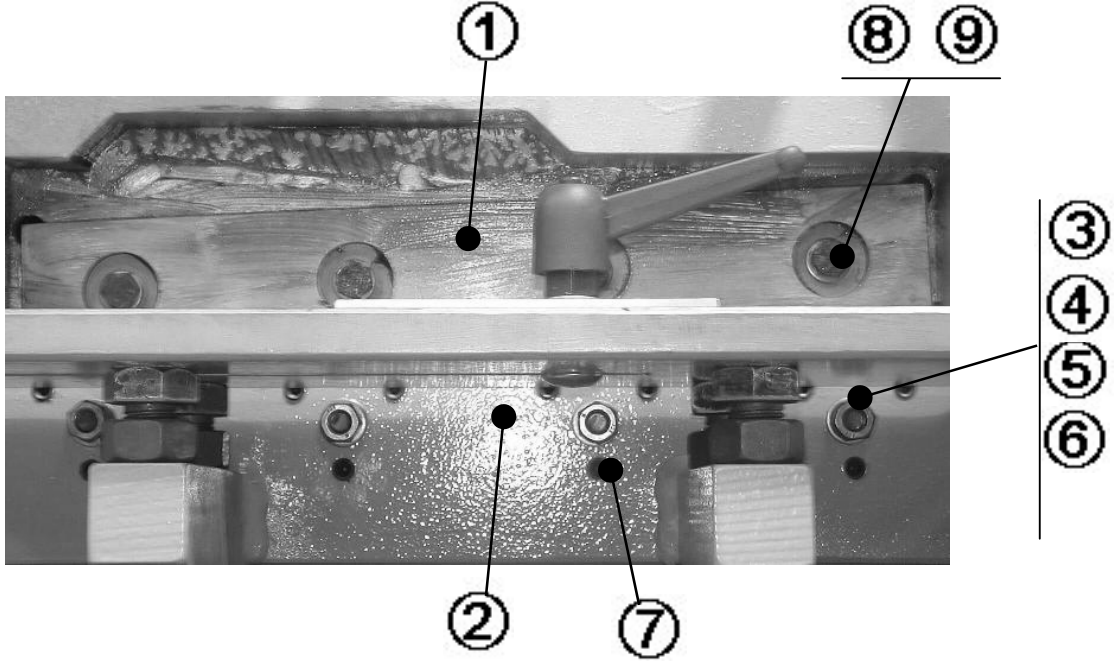
In order to adjust the blades, move the shear lever so wide towards down that both blades get (mobiles and fixed blades) get aligned. Now disconnect the machine. Adjust the mobile blade in such a manner that there remains a cutting distance of 0.1mm (the thread pins, part no.4 serve for the adjustment). Pull the blade having conserved the right cutting distance (screws, part no. 5).



Note : Both blades can be used on both sides. You have four cutting edges.

No	Miktar	Parça adı	Üretici
1	1	Mobile angle blade	Sahinler
2	2	Fixed angle blade	OEM
3	3	Hex. soc. head cap bolt M16x45	Sahinler
4	10	Set screw M10x20	Sahinler
5	4	Hex. soc. head cap bolt M16x45	Sahinler
6	4	Spring washer 16 mm	Sahinler

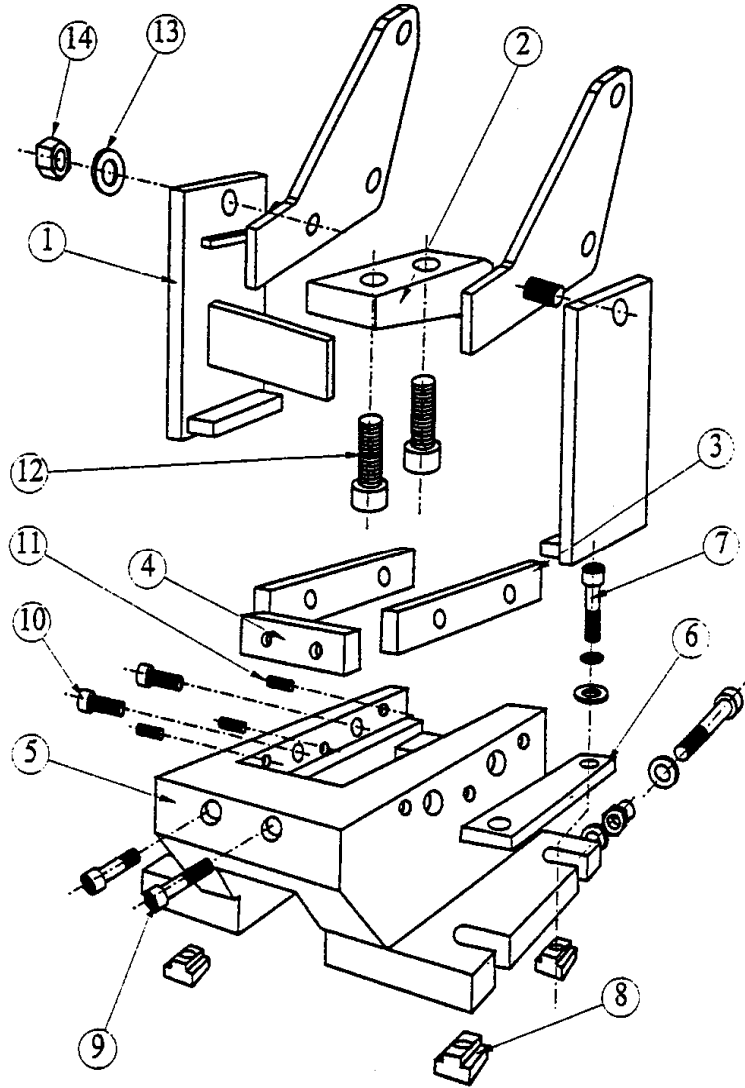
BLADE PART LIST



NO	PART DESCRIPTION	QUANTITY
1	Upper blade	1
2	Lower blade	1
3	Set screw M12x80	5
4	Washer 12 mm	5
5	Spring washer 12 mm	5
6	Nut M12	5
7	Set screw M12x35	15
8	Hex. soc. head cap bolt M12x35	5
9	Washer 12 mm	5



NOTCHING PARTS



NO	PART DESCRIPTION	QUANTITY
1	Scraper finger	2
2	Upper blade	1
3	Lower blade	2
4	Lower blade	1
5	Holder	1
6	Tensioning	2
7	Hex. Screw M12x65	4
	Spring disc 12mm	4
	Flat disc 12 mm	4
8	Nut M12	4
9	Internal hex. Screw M10x25	2
10	Internal hex. Screw M10x30	4
11	Maden screw M8x20	6
12	Internal hex. Screw M16x40	2
13	Flat disc M16	2
14	Nut M16	2



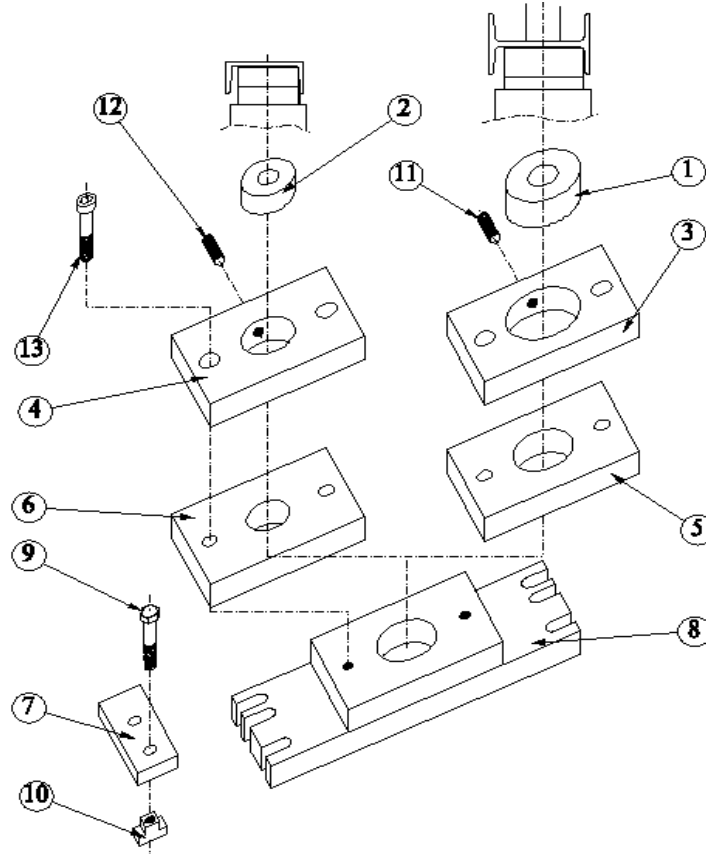
SPECIAL ACCESSORIES

Drilling of the I and U profiles

During punching of the I profiles, change the standard scraper head with the lengthened type.

Min. profile size 65 for I or U profile

Max. profile size 120 for I or U profile



NO	PART DESCRIPTION	QUANTIT Y
1	Hole ring (5 – 38) usable with stamp 9001 & 9004	1
2	Hole ring (3 – 19) usable with stamp 9000 & 9004	1
3	Hole ring holding plate	1
4	Hole ring holding plate	1
5	Adapter plate	1
6	Adapter plate	1
7	Support tensioning	2
8	Matrix support	1
9	Hex. soc. head cap bolt M16x60	4
10	T nut M16	4
11	Set screw M10x12	1
12	Set screw M8x12	1
13	Soc. head cap bolt M12x60	2



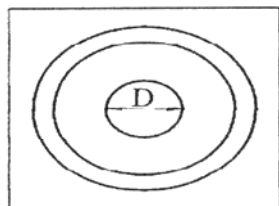
sahinler
METAL MAKİNE ENDÜSTRİ A.Ş.

PRESS BRAKE BENDING:

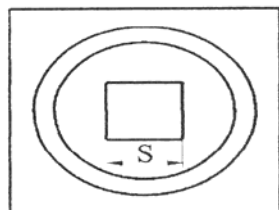
Bar bending max. capacity: 250x22 mm
Sheet bending max. capacity: 700x3 mm



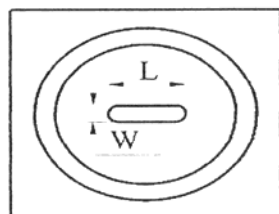
OPTIONAL PUNCH, DIE & BLADE



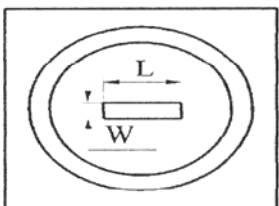
Round Punch	Code	Die	Code
D = Diameter		D = Diameter	
6-30mm (betw.)	1001	6-30mm (betw.)	2023
31 - 38 mm (a)	1004	31 - 38 mm (a)	2023
39 - 57 mm (b)	1007	39 - 57 mm (b)	2024
58 - 85 mm (c)	1010	58 - 85 mm (c)	2025
86 - 110 mm (d)	1011	86 - 110 mm (d)	2026



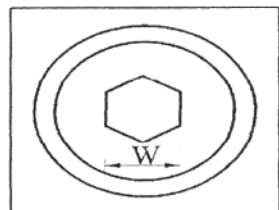
Square Punch	Code	Die	Code
S = Square		S = Square	
21 mm (upto)	1171	21 mm (upto)	2213
22 - 26 mm	1172	22 - 26 mm	2213
27 - 40 mm (b)	1175	27 - 40 mm (b)	2214
41 - 60 mm (c)	1178	41 - 60 mm (c)	2215
61 - 77 mm (c)	1179	61 - 77 mm (c)	2216



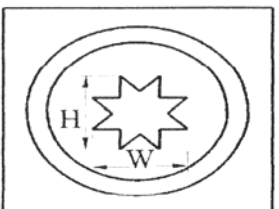
Elliptical Punch	Code	Die	Code
L = Length		L = Length	
30 mm (upto)	1184	30 mm (upto)	2221
31 - 38 mm (a)	1185	31 - 38 mm (a)	2221
39 - 57 mm (b)	1188	39 - 57 mm (b)	2222
58 - 85 mm (c)	1191	58 - 85 mm (c)	2223
86 - 110 mm (d)	1192	86 - 110 mm (d)	2224



Rectangular Punch	Code	Die	Code
L = Length		L = Length	
30 mm (upto)	1197	30 mm (upto)	2229
31 - 38 mm (a)	1198	31 - 38 mm (a)	2229
39 - 57 mm (b)	1201	39 - 57 mm (b)	2230
58 - 85 mm (c)	1204	58 - 85 mm (c)	2231
86 - 110 mm (d)	1205	86 - 110 mm (d)	2232

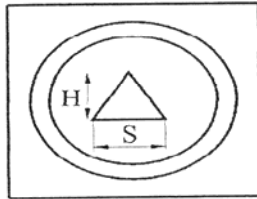


Hexagonal Punch	Code	Die	Code
W = Six-angle		W = Six-angle	
38 mm (upto) (a)	1502	38 mm (upto) (a)	2506
39 - 57 mm (b)	1503	39 - 57 mm (b)	2507
58 - 85 mm (c)	1524	58 - 85 mm (c)	2526
86 - 110 mm (d)	1525	86 - 110 mm (d)	2527

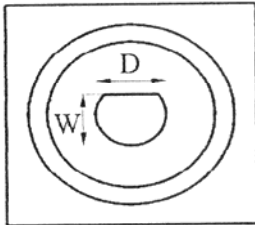


Star Punch	Code	Die	Code
W = Eight-Angle		W = Eight-Angle	
38 mm (upto) (a)	1553	38 mm (upto) (a)	1557
39 - 57 mm (b)	1554	39 - 57 mm (b)	1558
58 - 85 mm (c)	1555	58 - 85 mm (c)	1559
86 - 110 mm (d)	1556	86 - 110 mm (d)	1560

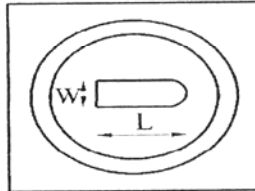
OPTIONAL PUNCH, DIE & BLADE



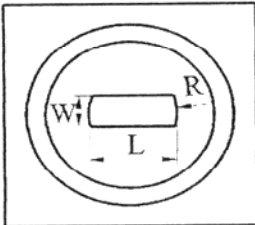
Triangle Punch	Code		Die	Code	
S = Triangle			S = Triangle		
38 mm (upto) (a)	1512-1		38 mm (upto) (a)	2516-1	
39 - 57 mm (b)	1513-1		39 - 57 mm (b)	2517-1	
58 - 85 mm (c)	1518-1		58 - 85 mm (c)	2520-1	
86 - 110 mm (d)	1519-1		86 - 110 mm (d)	2521-1	



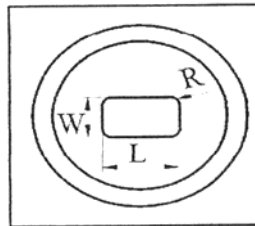
Half-Circle Punch	Code		Die	Code	
D = Half Circle			D = Half Circle		
38 mm (upto) (a)	1512-2		38 mm (upto) (a)	2516-2	
39 - 57 mm (b)	1513-2		39 - 57 mm (b)	2517-2	
58 - 85 mm (c)	1518-2		58 - 85 mm (c)	2520-2	
86 - 110 mm (d)	1519-2		86 - 110 mm (d)	2521-2	



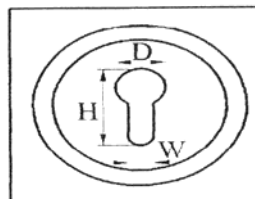
D-Form Punch	Code		Die	Code	
L = D-Form			L = D-Form		
38 mm (upto) (a)	1512-3		38 mm (upto) (a)	2516-3	
39 - 57 mm (b)	1513-3		39 - 57 mm (b)	2517-3	
58 - 85 mm (c)	1518-3		58 - 85 mm (c)	2520-3	
86 - 110 mm (d)	1519-3		86 - 110 mm (d)	2521-3	



Wedge-Form Punch	Code		Die	Code	
L = Wedge Shape			L = Wedge Shape		
38 mm (upto) (a)	1512-4		38 mm (upto) (a)	2516-4	
39 - 57 mm (b)	1513-4		39 - 57 mm (b)	2517-4	
58 - 85 mm (c)	1518-4		58 - 85 mm (c)	2520-4	
86 - 110 mm (d)	1519-4		86 - 110 mm (d)	2521-4	

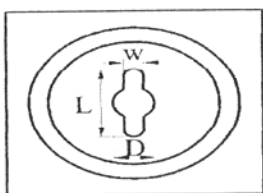


Radiused Quadrangle Punch	Code		Die	Code	
L = Radiused Quadrangle punch			L = Radiused Quadrangle punch		
38 mm (upto) (a)	1512-5		38 mm (upto) (a)	2516-5	
39 - 57 mm (b)	1513-5		39 - 57 mm (b)	2517-5	
58 - 85 mm (c)	1518-5		58 - 85 mm (c)	2520-5	
86 - 110 mm (d)	1519-5		86 - 110 mm (d)	2521-5	

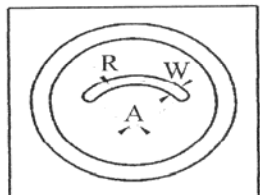


Key Punch	Code		Die	Code	
H = Key			H = Key		
38 mm (upto) (a)	1512-6		38 mm (upto) (a)	2516-6	
39 - 57 mm (b)	1513-6		39 - 57 mm (b)	2517-6	
58 - 85 mm (c)	1518-6		58 - 85 mm (c)	2520-6	
86 - 110 mm (d)	1519-6		86 - 110 mm (d)	2521-6	

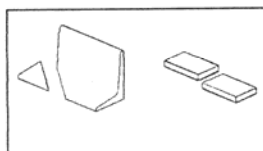
OPTIONAL PUNCH, DIE & BLADE



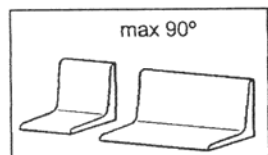
Double-Key Punch	Code		Die	Code	
L = Double-Key			L = Double-Key		
38 mm (upto) (a)	1512-7		38 mm (upto) (a)	2516-7	
39 - 57 mm (b)	1513-7		39 - 57 mm (b)	2517-7	
58 - 85 mm (c)	1513-7		58 - 85 mm (c)	2520-7	
86 - 110 mm (d)	1513-7		86 - 110 mm (d)	2521-7	



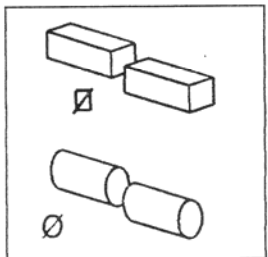
Radial Punch	Code		Die	Code	
W = Radial hole			W = Radial hole		
38 mm (upto) (a)	1512-8		38 mm (upto) (a)	2516-8	
39 - 57 mm (b)	1513-8		39 - 57 mm (b)	2517-8	
58 - 85 mm (c)	1518-8		58 - 85 mm (c)	2520-8	
86 - 110 mm (d)	1519-8		86 - 110 mm (d)	2521-8	



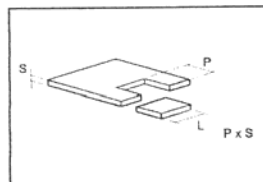
Blades	Kod No	HKM 45	HKM 60	HKM 65	HKM 85
Top Blade	1601-1				
Bottom Blade	1601-2				



Blades	Kod No	HKM 45	HKM 60	HKM 65	HKM 85
Inner Blade	1602-1				
Outer Blade	1602-2				



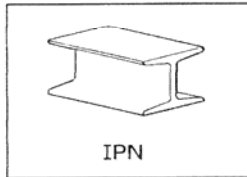
Blades	Kod No	HKM 45	HKM 60	HKM 65	HKM 85
Complete Blade SET	1603				



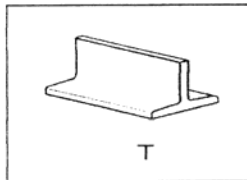
Blades	Kod No	HKM 45	HKM 60	HKM 65	HKM 85
Top Blade	1604-1				
Bottom Blade	1604-2				



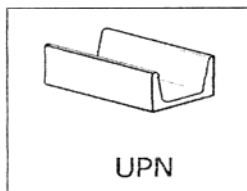
OPTIONAL PUNCH, DIE & BLADE



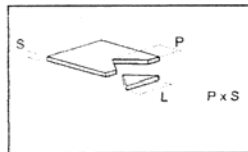
Blades	Kod No	HKM 45	HKM 60	HKM 65	HKM 85
Complete Blade SET	1605				



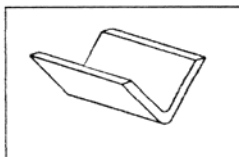
Blades	Kod No	HKM 45	HKM 60	HKM 65	HKM 85
Complete Blade SET	1606				



Blades	Kod No	HKM 45	HKM 60	HKM 65	HKM 85
Complete Blade SET	1607				



V-Notching	Kod No	HKM 45	HKM 60	HKM 65	HKM 85
Complete SET	1608				



Press-brake	Kod No	HKM 45	HKM 60	HKM 65	HKM 85
Complete SET	1609				

Important Notes: Below-mentioned accessories must be purchased.

- (a) Between 31-38mm, Adepter
- (b) Between 39-57mm, Adepter, Guide-Nut, Pressure-Plate & Tension-Plate
- (c) Between 58-85mm, Adepter, Guide-Nut, Pressure-Plate & Tension-Plate
- (d) Between 86-110mm, Adepter, Guide-Nut, Pressure-Plate & Tension-Plate

Description	Prices
Adapter	
Guide-Nut	
Pressure Plate	
Tension Plate	

*** All the punch, die and blades can be fixed to all models (HKM-45, 60, 65, 85)